RAILWAYS versus WATER-COURSES.

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A PAPER READ BEFORE THE

QUEBEC BOARD OF TRADE

BY THE PRESIDENT,

JOS. SHEHYN, ESQ., M.P.P.,

ON THE 20TH NOVEMBER, 1883.

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RAILWAYS versus WATER-COURSES.

At a special general meeting of the Quebec Board of Trade, held in the Board Room, Exchange Building, on Tuesday, the 20th November, 1883, an interesting paper, under the above title, prepared by the President, Jos. Shehyn, Esq., M.P.P., was read, received, and, by unanimous resolution, ordered to be printed, as follows:

§

For years past, continuous efforts have been made to induce the Government of the Dominion to continue the improvement of our water-courses from Lake Superior down to tidal water, on the ground that, without such improvement, the western traffic would leave the St. Lawrence route. We all know how persistent the Montreal Harbour Commission have been in urging upon the Government the necessity of relieving them of the expenditure already incurred for the creation of an artificial channel between Quebec and Montreal and what pressure was brought to bear upon our Federal authorities to get them to assume the responsibility of all further improvements required to render the channel navigable for the largest actual and future steamships, on the pretext that this amelioration of the river St. Lawrence is in the general interest of commerce and navigation and consequently that the public, and not the Harbour Commission of Montreal, should bear the expense thereof.

The Quebec Board of Trade has, from the very commencement, been opposed to the pretensions of the Montreal

Harbour Commission, holding that the improvements in question, being of a local nature, ought as such to be borne by the trade of Montreal, which is directly benefitted thereby. But, as Montreal is now more urgent than ever in its demands upon Government to relieve it from a burthen which it was willing enough to bear at the outset when the works of improvement were begun with the view of drawing ships to its harbour, it may be opportune to consider the question of the future destiny of the great continental and foreign traffic of this country. My object, however, in treating so vast a question is not so much to seek to influence the members of this Board or to refute the Harbour Commission of Montreal as to bring the public mind to bear upon a subject in which it is largely interested and to place before those who have charge of our destinies such views as may be useful to them in determining the policy to be followed in all matters pertaining to our carrying trade—very few people, so far, having taken the trouble to look, in its broad, general aspect, at a question, which, so to say, has been pretty much left to the treatment of special localities according to their influence or their interests respectively.

The great political economy of the question I am about to discuss is not whether certain localities are to have an advantage over others, but what is to be the future destiny of the local and through transit traffic of our Confederation—what will be the great motors as regards the carriage of our products and those of the western plains to the seaboard—what is to be the future destiny of our railways in this country and what influence will our water-courses have on its carrying trade—in fine, will our great transit trade be absorbed by our system of railways or will it seek an outlet *via* our lakes, canals and rivers ?

These are the aspects in which the question must be viewed and our best efforts should tend to its solution from

as broad and general a standpoint as possible. But, to arrive at satisfactory conclusions, it is necessary to review the progress made of late years in the carrying trade both on land and sea and to note well the changes that have taken place. We must carefully weigh the volume of traffic carried on our inland water channels and the important part played by railways not only in the matter of local traffic, but in the influence they exercise upon that portion of it which seeks an outlet to the sea.

I do not anticipate that the conclusions I have reached will meet the interests or suit the tastes of every one. But I feel confident that, based as they are upon facts which can be verified by all willing to investigate the subject for themselves, they will stand the test of criticism. I must frankly admit that I would have been much better pleased if, after a serious study of the question in which we are all so much interested, I had arrived at conclusions more in accord with the wishes and expectations of all concerned for the rapid development and welfare of the Dominion through the acquisition of a larger share of the grain and produce trade, that is to say, by making the St. Lawrence the great vehicle for more of the immense transit trade annually finding its way to the seaboard. Facts are facts, however, and we must accept them as they are. It will not improve our position to allow ourselves to be carried away by our imaginations or to rest content with illusions.

I may say that my conclusions are not based on any mere flight of imagination. They are the result of a great deal of investigation and a careful study of the whole subject and are supported by the strongest possible evidence, being not only fortified by official statistics of various kinds, but endorsed by men perfectly competent to pronounce authoritatively upon the points raised. They may not satisfy every one. Men, as a rule, look at such questions from their own stand-points and those of their immediate interest.

But, in the present instance, my object is not to please individuals. It is rather to fearlessly and honestly put before the great body of the public my views respecting the routes and the mode of transport that are destined, in my humble opinion, as well to absorb the bulk of the through transit traffic, as to control the local distribution of merchandize and products of all kinds.

Without further preamble, therefore, I shall lay before you and the public the results of my observation and research, trusting that the arguments and facts which I shall bring to bear on a subject matter of such urgent and paramount importance may serve not only to impart some valuable information, but to determine the precise value of certain theories that have been emitted from time to time touching the destiny of our great water ways and the influence they are likely to exercise upon the western trade in attracting a larger share of it to our chief channel of navigation, the St. Lawrence.

QUESTIONS TO BE CONSIDERED.

Is the deepening alone of the channel between Quebec and Montreal indispensable to the further development of the eastern and western traffic *via* the St. Lawrence?

Are the pretensions of the Montreal Harbor Commission that the undertaking should be carried out at the public expense founded upon irrefutable facts, and has that body upon reliable data attempted to satisfactorily prove to the public that a deeper channel will secure the western traffic and increase the amount of business over our water-courses west of Montreal?

Would the Government be warranted in adopting a policy dealing at once with a grave and intricate question of political economy, whose solution requires to be well considered, as it will necessarily involve the country in a

vast expenditure to carry out a scheme relative to our water-courses beneficial to the whole country and not to a single locality?

Is the deepening alone of the channel between Quebec and Montreal to be considered as a public work and should the cost of giving it a further depth of 2½ feet be assumed by the Government?

I have read with much interest all that has been uttered and written by the advocates of the scheme. I have also perused with great attention the memorial of the Montreal Harbor Commission and must candidly admit that all the pleas advanced in the connection have failed to convince me that they are right in their claim.

I have sought in vain in all the arguments used for one solid reason in their favor. Plenty of words I have found, but no substantial, unanswerable reasoning to uphold their pretensions.

MONTREAL'S PRETENSIONS.

It is true that Montreal boasts of being the head of navigation, styling itself *the* port of the Dominion ; but, while proclaiming this fact to the world, it declares in the same breath to the Government that, unless a further depth of 2½ feet be given the channel at public expense, the trade will leave the St. Lawrence route, thus parading its pretension on the one hand to be the great port of the Dominion and denying its correctness on the other.

The Montreal Harbor Commission, by their own memorial to the Government, admit that the port of Montreal can only be made available for the general traffic upon certain conditions, that is, by the Government making, at the public expense, an artificial channel, by which, on the plea of seeking the general interest, they hope to bring the trade

to their own doors. According to their own confession, Montreal can only become the great shipping port of the Dominion upon one condition—that it be made so at the public expense. On the face of that confession, the futility of their pretensions is at once apparent. But, if further evidence of the weakness of their cause be needed, I advise all interested in the subject to carefully read their memorial to the Government and try to discover in it, if possible, anything tangible and of a nature to justify the expenditure which they desire to saddle on the public at large.

How comes it for several years past that they have failed to secure a larger share of the western traffic ? Is this fact due to "want of water" in the channel between Quebec and Montreal or is it traceable to other causes over which they have no control ?

If a greater share of the through traffic has not been secured, it is clearly not owing to want of water east of Montreal, for, with the improved channel, excepting a few of the largest steamships afloat which have to lighten before going up, all other steamships and vessels have had no difficulty in reaching that port. It cannot consequently be on that account that a larger share of the through traffic did not seek the St. Lawrence route or that we failed to secure our due share of the grain trade seeking an outlet over American territory.

The question with which we have to deal is invested with a deeper significance than the mere fact of having a little more or less water in the channel between Quebec and Montreal, and any one, who has made the least study of the subject, will at once come to the conclusion that we have to contend with other causes which have reduced the value and diminished the importance of our great river highway.

PAST USEFULNESS OF WATER ROUTES.

At one time, our water-courses were our only channels for the exchange of traffic between one locality and another, and it was only through them that the seaboard could be reached. In those days, there were no railways. It is consequently not surprising that they should have attracted much attention at the hands of the men who then had charge of our political destinies. The business men of those days were also quite right in advocating their improvement to foster a traffic, which, no doubt, only for our railways, would have followed the river St. Lawrence as their natural outlet to the Atlantic. Any one glancing at a map of our continent must readily admit that our predecessors were correct in their then conclusions that the great western traffic would find its way to the sea by our inland navigation. It is therefore not surprising that considerable efforts should have been made to overcome some of the great obstacles to the uninterrupted navigation of our water courses and to carry out such improvements as would afford additional facilities to the flow of a traffic, whose rapid and steady increase was looked upon as a certainty in the then near future. But that was before the railway age when no one dreamt of the important role which the iron horse was destined to play.

Originally, all settlements were located on the margin of our lakes and rivers, which then offered the best available means of summer communication between one locality and another, as well as to transport our surplus production to the sea-board in exchange for the wares of other countries.

In those days, the best lands in the interior were comparatively of little value on account of their inaccessibility and distance from the distributing centres. We all know from experience that without a comparatively easy access to markets no large amount of traffic is possible. Hence

the preference of all settlers as a rule for proximity to the water routes in order to reach the markets where they could exchange their surpluses for foreign goods.

RAILWAYS INAUGURATE A NEW ERA.

Now, this great drawback has disappeared since the introduction of railways, which have worked wonderful changes in the trade and commerce of the civilized world. By their means, every part of a country is rendered accessible, no matter what may be its distance from a water-way or the seaboard. They have, indeed, become the great factors in the distribution of a nation's products, superseding as such to a very large extent all lake and river navigation. Of late years, lines of railway have been carried to the most remote parts of our own continent and have thus thrown open to trade and traffic areas of arable lands, which were previously considered inaccessible by the ordinary modes of communication. Railways have, in fact, become the great vehicles of transport in this hemisphere, as well as in all other civilized communities. Nowadays they play so important a part in the traffic of a country that water-courses and water stretches have no longer the same utility as formerly. The great bulk of the trade has to be carried on by railways, as they offer over water-courses a multiplicity of advantages, which it is needless to here specify, as they are familiar to every body.

Since the introduction of railways in this country, there is no longer the same necessity for dependence upon water for communication with the markets and centres of distribution, and the result is visible in the progress of settlement even in the most distant parts of the interior and in the facility with which their products attain the seaboard in quest of a foreign market. In reality, railways have grown steadily in importance and have not only become the vehicles of local distribution, but are rapidly constituting

themselves the great arteries of conveyance to the sea. As such, they are actually becoming not only serious competitors for the carrying trade, but are gradually driving out the competition of the water routes.

RAILWAY COMPETITION AND ITS EFFECTS.

Look at what the Grand Trunk has done since it went into operation! The Ontario Navigation Company, which at one time was a successful line, became paralyzed as soon as it had to compete with the Grand Trunk, and we know for a fact that, ever since its amalgamation with the Richelieu Company, the latter's stock has been quoted much below par.

For years past, all the sailing craft on the lakes have barely managed to eke out an existence. In fact, all such investments, once regarded as very remunerative, are no longer reckoned profitable—the truth being that it is not wholly to want of water that we must ascribe the non increase of the carrying trade which was altogether done formerly over the water-courses running parallel with the Grand Trunk, but rather to the latter's gradual monopoly of the business.

Now, what has happened on our own waters? At one time, our Gulf Ports Steamship Company had established a line between this port, Montreal and the Lower Provinces. They were gradually building up an important trade with our maritime neighbors and from year to year extending their operations. No doubt, in a very short time, the exchange of traffic with the Lower Provinces would have assumed very considerable proportions. But no sooner was the Intercolonial opened to the public than the Steamship Company had to retire from the field and to send their vessels to New York to inaugurate a line between that port and Bermuda, retaining only one on the Canadian route where

but shortly before they had had seven or eight. No one will for a moment pretend that it was owing to want of a sufficiency of water from Montreal down to the Lower Provinces that this line had to reduce the number of its ships. Another effect of the Intercolonial was to drive out of the field all our coasters, which the Gulf Ports steamers had already begun to run off the track and which were finally killed out altogether by the insuperable competition of the railway.

We know that, since we have had the competition of the North Shore Railway, the Richelieu Company can scarcely hold its ground and that, only for a traffic arrangement with the Grand Trunk, which now controls both sides of the river, the Richelieu Company would be gradually run off the route.

The traffic on the Grand Trunk and North Shore Railways from the west to Quebec is very large, so much so, that at certain seasons its volume is more than the Grand Trunk can handle through lack of proper terminal facilities at Levis as well as on this side of the river. The large freights carried by these lines are, of course, at the expense of the water route, as our trade here has not increased in proportion. Besides first class freight, the North Shore Railway carries a large quantity of stone for building purposes, a great portion of which, used in the construction of the graving dock, is brought down from a quarry on the line to the terminus at deep water, showing that though the contractors can utilize the river for the purpose, they find it more advantageous to avail themselves of the North Shore Railway in consequence of the expense and trouble attending the cartage of the stone to tidal water. We have, in fact, under our own eyes ample proof of what railway competition is doing and has done and can see that it is gradually appropriating the traffic formerly monopolized by our water channels.

Indeed, railways are steadily doing on land what steam has done for the ocean traffic. It is not so many years since there were no Atlantic steamers and the entire carrying trade was done by sailing vessels. When steamers began to cross the ocean, many were under the impression that they would never be able to compete successfully with sail in the transportation of merchandize, seeing that they were at the outset run at great expense and could be only utilized for mails, passengers, and, perhaps, a few fine goods; the greater portion of their available space being taken up with coals, of which so much was consumed in a voyage as to preclude the possibility of profitable freight competition with sailing vessels. What a change has since taken place! From craft of 1000 tons and less, they now run up to eight thousand tons, with a greater carrying capacity, improved machinery and a largely reduced consumption of coal. In fact, the cost of running a large steamer has been cut down to a minimum—so much so that a 5000 ton craft does not actually cost much more to run than a 1000 ton steamer did formerly and no one can foresee what further improvements may take place. As it is, sailing vessels have almost wholly disappeared and the few that are left are only used for coal and square timber freights. This is what has been done in our own age by steam on the sea. Now, what have railways done in Great Britain? They have killed the canal system, which is no longer availed of at the present day but for the carriage of pig iron, timber and coals. Neither has the coasting trade increased since railways have come into operation. Nowadays, no one dreams of sending London goods by water to Liverpool. On the contrary, forwarders and shippers send them by rail to the latter port, where they are transferred to the Atlantic steamers, which in their turn convey them to their ports of destination.

No one will pretend that goods destined for a foreign market are now despatched to the seaboard by canals or coasting vessels. They are sent by rail. In fact, the slow process of canals would not be tolerated and would not pay. Moreover vessels could not be induced to wait for cargoes upon such conditions. The truth is that canals in England are no longer used but for the convenience of inland localities and the transportation of the very lowest class of products.

DISASTROUS RESULTS OF RAILWAY COMPETITION UPON AMERICAN CANALS.

Now, let us return to our own continent and examine for a moment what has occurred in the State of New York, for instance. A glance at the map of that State will show a complete network of railways converging towards New York, Boston, and other United States ports, such as Baltimore, Philadelphia, Portland, and even New Orleans. These railways connect with all the producing parts of the Union and extend in all directions warranted by the exigencies of traffic. There is so much competition between the various trunk lines, all striving for the through traffic and putting forth their utmost efforts to bring grain and other products to their own seaboards, that the State of New York has been obliged to actually abolish the tolls on the Erie Canal in order to retain a certain amount of business for that channel. Railways are, in point of fact, exercising the same influence on the carrying trade there as is noticeable within our own territory. The Erie Canal can no longer bid for the bulk of the carrying trade with such arteries as the New York Central and the Erie, and, for convincing proof on this head, it is only necessary to refer to the report for 1882 of General Seymour, the State Engineer. In the report in question, at page 9, will be found the following conclusion :—

" *Efforts to increase Tonnage by reducing Tolls.*—It is well " understood that, during the past few years, the Canal " Board has reduced the tolls from time to time until, with- " in the last two years, they have been entirely abolished on " the westward bound freight and reduced to nearly or " quite a minimum on freight bound eastward, and that " that has been done in the hope that the reduced tolls " would increase the volume of tonnage to such an extent " that the revenue from the canals would still cover the " expenses of superintendence and repairs.

" Experience has demonstrated, however, that no such " result can be realized, and the people have therefore de- " cided, by the adoption of the recent amendment to the " Constitution, that the canals of the State shall hereafter " be entirely free from tolls and that the cost of maintaining " and operating them shall hereafter be provided for by " direct taxation.

" In 1862, the date of the completion of the enlargement, " there were 2,710 miles of completed railroad in the State; " and there were two through lines, the New York Central " and the New York and Erie, that became direct and " powerful competitors of the Erie Canal for the traffic be- " tween the western lakes and tide water.

" *The Adverse Result produced by Natural Causes.*—There " can be no doubt that the result as shown above differs " very widely from the hopes and the anticipations of those " who originally advocated and projected the enlargement " of the canals at such an enormous expenditure by the " State, and yet the causes which have produced this ad- " verse result, although not easily foreseen, become quite " apparent when viewed in retrospect.

" In 1835, the date of the report of the Engineers before " referred to and also of the first decisive steps taken towards " the enlargement, there were only one hundred miles of " completed railroad in the State, and there was no imme- " diate prospect of the completion of any through lines be- " tween tide water and the lakes that would be liable to " compete successfully with the State canals.

" Through lines had also been constructed in other States, " which offered an active competition for the same traffic " to the canal and railroad lines through the State of New " York.

" In 1882, we find that there are not less than 6,600 miles " of completed railroad in the State; and that the two " great trunk lines above referred to have added largely " to their carrying capacity, the Erie by doubling its track, " and the New York Central by quadrupling its track, thus " practically increasing its tonnage capacity to a maximum " and reducing its cost of transportation to a minimum.

" Lines have also been straightened, grades reduced and " wooden bridges replaced by iron, T rails substituted " for straps, and finally steel rails substituted for iron, " thus rendering the roadway proper as perfect as " possible; while, at the same time, locomotive engines " have been more than quadrupled in power, and rolling " stock has been supplied with all modern improvements; " all of which has had the effect to reduce the cost of trans- " portation, on comparatively local railroads, to a minimum " not exceeding a half cent per ton per mile.

" Many other lines of railway have been constructed " between the western lakes and Mississippi valley and the " Atlantic sea board; and all of these great trunk lines " have absorbed and consolidated with lateral lines, and " lines extending farther westward to such an extent that " their influence is felt and their power acknowledged " to the most remote bounds of improvement and civiliza- " tion.

" *Difficulties to be overcome by Canals.*—It should also be " considered that canals can be navigated only about seven " months in the year; that the time of their opening and " closing is always very uncertain; that their navigation is " constantly subjected to detentions occasioned by the want " of an adequate supply of water, together with breakages " and other unavoidable accidents; and that the time re- " quired for boats to pass between the lakes and tide water " is about five times that required by railroads; while, on " the other hand, freight may be shipped by railroad every " day in the year and delivered at its destination with the

" utmost regularity, and at prices generally but very little,
" if any greater, and in many cases much less, than those
" charged upon the canals.

" This single item of detentions caused by breaks in the
" canals would of itself, if generally understood, seem to
" afford sufficient reason for a diversion of a considerable
" amount of tonnage from the canals, to say nothing of the
" enormous expense which they entail upon the State.

" It is a matter of surprise that no regular record or
" account of these casualties has been kept in any depart-
" ment of the State Canals ; but a careful examination of
" the different reports shows that, from 1858 to 1882 in-
" clusive—embracing a period of twenty five years—the
" detentions by breaks in all the canals of the State, so far as
" any record can be found, amount to nine hundred and
" twenty-five days ; and that their cost to the State has
" amounted to $2,042,103 and there can be no doubt that
" a large percentage may be added to these figures with
" perfect safety.

" During the most busy portion of the season of naviga-
" tion, in September last, a serious break occurred in the
" Erie Canal, on the Jordan level, a few miles west of
" Syracuse, which caused a detention of nine days ; and
" another occurred on the same canal, at Brighton, only a
" day or two before the closing of navigation, in December,
" which has not yet been repaired ; but which, if it had
" occurred a few days or weeks earlier, would have caused
" very serious detention.

" *Practical Solution of the Canal Problem.*—In view of all
" the foregoing facts and considerations it would appear that
" the true solution of the great canal problem may be briefly
" stated as follows :

" 1. The Erie Canal can never become self-sustaining, and
" at the same time compete successfully with rival lines
" of railway and other through channels of communica-
" tion, for the great bulk of the carrying trade between the
" west and the Atlantic sea-board.

" 2. Inasmuch as the annual tonnage of the canals has
" not been materially increased since the completion of the

" present enlargement, there appears to be no encourage-
" ment for advocating a further enlargement at the enor-
" mous expense which it would entail upon the State ;
" unless it be to add one foot to the depth of the water
" on the levels between locks, which would undoubtedly
" be of great advantage to navigation.

" 3. Judging from the present dilapidated condition of the
" canals, which has been brought about by the want of
" necessary means to keep them in good working order
" and at the same time prevent their rapid disintegration
" and decay, there can be no doubt that the prompt action
" of the Legislature and the people, in adopting the recent
" amendment to the Constitution, affords the only means
" by which the usefulness of the canals can be perpetuated
" to the people of the State, by opening a free channel of
" water communication between the western lakes and
" their great commercial metropolis.

" 4. In order to realize, to the fullest extent, the benefits
" that are expected to result from this new departure in the
" canal policy of the State, the Legislature should promptly
" provide the means required for placing the canals in such
" perfect repair, and also for making such improvements
" in the prism and structures, together with such increased
" facilities for obtaining an adequate supply of water, as
" will enable the canals, at all times during the season of
" navigation, to be safely watered up to their full capacity,
" and all danger of detentions from breakages, blockades,
" and other causes be effectually avoided.

" It appears from the above table that the tonnage on the
" old canals increased from 1,178,296 tons, in 1837, to
" 5,598,785 in 1862 ; and that the tolls had increased, dur-
" ing the same period, of twenty-five years, from $1,292,623
" to $5,188,943; also, that the tonnage on the enlarged
" canals has not materially increased since their completion,
" but has slightly fluctuated between 5,557,692, in 1863,
" and 5,468,311 in 1882, the average being 5,599,743 ; and
" the tolls, during the same period of twenty years, have
" rapidly diminished, from $4,645,207 to $685,518."

ABOLITION OF CANAL TOLLS NO REMEDY.

The Auditor of the Canal Department of the State of New York for the year ending September 30, 1882, at page 8 of his annual financial report, makes the following statement:

" In order to meet the provisions of the third section of " article 7 of the Constitution, the revenues for the past " year should have been sufficient for the following pur- " poses, viz :—

" To pay the cost of collection, superintendence, and ordinary repairs of the canals...	$653,510	01
" To pay the interest on the canal debt.....	538,602	00
" To pay the annual contribution to the sinking fund for the extinguishing of the debt.	450,000	00
" To pay the general fund for the support of the Government.....	200.000	00
	$1,842,112	01
" Total revenue received.....	659,970	35
" Deficiency of revenue for the year ended September 30, 1882.....	$1,182,141	66

" The remission of tolls, as an independent measure, will " not increase the tonnage.

" There will be no increase in the business of the canals " and it is doubtful whether the present tonnage can be " maintained, unless something shall be done to facilitate " the movement of boats through the locks and to quicken " speed.

" The reduction in tolls and transportation rates has " heretofore proved ineffectual in causing an increased " movement by canal, and it is therefore evident that other " causes than tolls have prevented the canals from obtain- " ing a fair proportion of the yearly increase in the tonnage " moved. In 1872 the freight transported by the canals " amounted to 6,673,307 tons, the largest movement re- " corded.

" In the same year the total movement by the canals " and the two trunk railways of this State aggregated " 16,631,609 tons, the canals' proportion of the whole being " 40 per cent, with tolls at the rate of 3 cents per bushel of " wheat from Buffalo to tide-water.

" In 1881 the canals transported only 5,179,192 tons out " of a total movement of 27,857,394 tons by the canals and " two trunk roads, the canals' proportion of the whole being " only eighteen per cent, when the total movement by the " three routes was sixty eight per cent larger than 1872, " and the tolls had been been reduced nearly seventy per " cent. Had the canals kept pace with the railways they " would have moved in 1881, 15,215,283 tons or nearly three " times the tonnage actually transported through them.

" If nothing more is done to popularize the canals than " remitting the low toll which has been imposed for the " past few years it is quite clear, if the past is any index to " the future, that the time will soon arrive when the " business they will command will be no compensation for " the cost of maintaining them.

" *The Progressive Spirit displayed on other Routes,* " *Hints for Canal Managers.*—Upon all transportation " routes by water, steam has almost entirely superseded " every other motor. Every steamer constructed shows " some improvement upon its predecessor, either in size, " labor-saving appliances, or the more economical applica- " tion of steam. On the Atlantic the earlier steamers, in " order to compete with those of more modern construction, " are lengthened, when it is found that their draft is " diminished and their tonnage capacity and speed increased " with no greater cost for impulsion. The old railway craft " and the once famous packet now only find employment in " transporting freight too hazardous to be conveyed by " steamers, or on routes not yet traversed by the iron steam- " ers. On the Atlantic they are no longer recognized as " competitors upon routes where steam has been permanent- " ly established. They have become superannuated compe- " titors of the steamers.

" *The Grain Trade gradually leaving the Canals—The* " *cause and remedy suggested.*—It is but a few years since,

" comparatively, that canals almost monopolized the trans-
" portation of grain through the State. By means of steel
" rails, enlarged cars, more powerful motors, and elevators
" constructed at their western and Atlantic termini, the rail-
" roads by degrees began to compete for the grain carrying
" business, and are now transporting much the largest share
" of the grain delivered at the port of New York. The Erie
" and Central Roads, in 1869, transported in vegetable food
" 1,087,889, and 1881, 4,983,722 tons, a gain of 358 per cent.

" *The Canals transported* 1,221,397 *tons in* 1869, *against*
" 1,074,545 *tons in* 1881, *a loss of* 12 *per cent.* It may be that
" this increasing diversion of traffic from the canals to the
" railroads will continue in spite of anything that can be
" done to prevent it, but when we see and know that pre-
" ference is given to the most speedy methods of transport-
" ation, whether on the internal routes or on the Atlantic,
" the only apparent way to check it, is to modernize the
" canals by adopting every rational improvement for oper-
" ating and navigating them, which experience and en-
" gineering skill can suggest."

CONCLUSIONS TO BE DRAWN FROM AMERICAN EXPERIENCE.

When I commenced to write on this subject I had not then received these official statements which so clearly corroborate the views contained in this paper regarding the change that had already taken place on sea and on land through steam applied to motive power and its influence upon our inland navigation.

When on a deputation to Ottawa these were some of the views I expressed in the presence of the honorable Ministers who received us.

I was far from anticipating that my views would be so well borne out by these official statements whose existence I then ignored.

These reports are authentic and cannot be put lightly aside, as they are the work of officials specially appointed

for that purpose and whose interests should be to speak favorably of canals.

Moreover, these conclusions of the State Engineer and of the Auditor are based on actual returns of the traffic through the canals and over the trunk lines.

These returns are official and no one can for a moment doubt their veracity, as they are compiled by men who are obliged by their positions to give them as they are recorded in the official reports made to the State Government, which bear the same character as the blue books issued from our own public departments.

What conclusions of our own can we draw from these official reports ?

That the traffic on the Erie Canal or rather the States' canals has not for the last twenty years materially increased or in other words that the amount of tonnage has remained stationary, whilst the percentage of tolls has from time to time been reduced without increasing traffic. Therefore, it cannot be on account of the expense that canals are not more extensively utilized. According to their own admissions, the State officers of the canals have not much faith even in the total abolition of the tolls as a means of recalling the traffic to the water-courses.

In the State of New York alone we find that while the traffic upon the canals has diminished, the New York Central and Erie Railroads have more than quadrupled the tonnage over their lines in the last thirty years. These lines have so much improved their motive powers and carrying capacities that their efficiency has been worked up to a maximum, enabling them to do the carrying trade at very little more expense and, in many cases, at less than the canals.

The cost of these canals is enormous and the tolls levied upon them does not nearly cover the interest upon the capital invested in them, so much so that the State Government can scarcely be induced to keep them in a proper state of repair.

It has become so evident that canals cannot compete with railways, that the State Engineer admits officially that to render the former more effective it would require an enormous expenditure, which he cannot undertake to recommend. Although the State officers have no confidence in the total abolition of tolls as a means of attracting the bulk of the traffic, the State of New York is compelled to adopt that policy in order to prevent the canals from falling into disuse. Consequently those who claim that our traffic will leave the St. Lawrence route if we do not adopt the same policy are not quite conversant with the facts I have cited, as it is obvious that it will not be through the abolition of tolls on the Erie Canal that we will lose our traffic, since the canal is not the means used for the carrying trade and the traffic over it forms but an insignificant item compared with the total.

PROSPECTS OF CANADIAN COMPETITION FOR THE WESTERN TRAFFIC.

I believe that, were we to abolish the tolls on our canals, we might perhaps increase a little the tonnage over them ; but even then I feel confident that it would not bring the western traffic through that channel, as the railways would at once alter their tariff rates to meet the case. With our canals and railways, all we can do is to keep our own business in our own hands ; but the idea of doing a large United States' western traffic does not appear to me as a likely thing especially if we take the trouble of looking over a map, showing the tracings of the American system of railways. When we do so, we are at once struck with the vast pro-

portions of that system, which has the appearance of an immense spider's web, extending its ramifications in all directions, embracing in its comprehensive grasp all the lakes, rivers and water stretches, tapping all the grain-producing regions, spreading out from the interior to tidal water all along the sea coast, and having access to ports like New York, Boston, Baltimore, Philadelphia and New Orleans open all the year round, whereas ours on the St. Lawrence are closed for six months. Can any sensible man look at this vast railway system controlled by any amount of wealth and intelligence and supported by a population of fifty millions, and ask himself whether in our present stage of advancement as public carriers we have any chance of successfully drawing away to any extent the western traffic belonging to the Americans? The idea to my mind is preposterous, unless we could afford to do the business at such rates as would cut out American competition?

Now, it is clear enough that, on that point, we would soon have to give up the battle, as our position would be very much like that of a handful of men fighting against a large and well organized army

To hold our own, we will, indeed, have to do all we can, without entertaining the idea that we are destined to become in a near future the public carrier for a portion of the great transit trade of the United States.

The chief drawback with us is our long and severe winter, which renders the working of our railways during that season difficult and expensive as compared with the American roads. All our water communications are likewise shut up in winter. Water stretches will always have their usefulness and will, no doubt, continue to be utilized for the conveyance of all cheap and coarse stuff, which would be rather too costly to carry by rail, and where time is no

consideration. But the bulk of the traffic will go by rail, as the tendency of the day is to shorten distances by improved modes of locomotion—larger steamers provided with greater speed and all modern appliances replacing those of less speed and carrying capacity at sea to shorten distances from one country to another, and the same efforts being made on land for the prompt distribution of the internal traffic.

Within the last few years, railways have wonderfully improved their carrying capacity and there is no saying to what degree of effectiveness they may be brought during the next twenty years. Our own railways are still in their infancy. When the Canadian Pacific will have been completed and opened to through traffic, in addition to the Grand Trunk, and both reaching our new North West, the changes that will be effected by two such lines passing almost wholly through our own territory cannot be foretold. Both companies will be deeply interested in passing as much traffic as possible over their entire lines and will feel little inclined to hand over that traffic to our water routes.

Our great trouble at present is the competition we encounter at the hands of American railways and American ports.

There is such a keen rivalry between the great American trunk lines and such an effort is being made by the different ports to secure the largest possible share of the traffic, that rates are often reduced to a minimum and the business is run so fine that our own Atlantic steamers by the St. Lawrence route can scarcely keep up with those rates. Few people have anything but a vague or inadequate idea of the number of Atlantic steamers, outside the regular mail and passenger lines, which call at American ports in quest of cargoes. Rather than return empty, these vessels often take freights at ridiculously low prices. I have seen them charge as low as 10s. per cubic ton mea-

surement, not for coarse, but for ordinary fine goods. Moreover, freights on the Atlantic are brought down to their very lowest limits by the keenness of the competition. Two years ago, the Atlantic steamers had to pay for the transportation of grain and even our own lines here were glad to get grain to stiffen their ships with. To retain their business with the west, our own lines of steamers are obliged to deliver a portion of their cargoes at Levis and forward them at their own cost to their western customers, who would otherwise procure them *via* the United States, and the same thing has to be done with passengers, for whom, upon arrival, an express train to the west has to be provided.

TRIUMPH OF RAIL OVER WATER.

I think I have sufficiently established that railways all over the world are becoming the great carriers and are gradually displacing all other modes of inland conveyance. I believe also that, it has been made sufficiently clear that, in the near future, they will have become the sole channels by which the wealth of nations will be conveyed from the interior to the seaboard, and that water-courses will be only utilized for the transport of the lowest kinds of goods.

We can note under our own eyes what single lines of railway have done. They have actually drawn away already the bulk of the traffic which at one time sought our water-courses. What may they or will they not do hereafter, when we shall have increased their number to the proportions of such a system as that possessed by our American neighbors ?

Is it through want of water between Quebec and Montreal that we have failed of late years to materially increase, except through our own development, the grain trade and produce traffic through our water-courses ? Decidedly not ; for even at the present date there is a great deal more water in

the St. Lawrence canals than in the Erie canal, that is, on the average. How comes it that our Atlantic steamers are obliged to complete their cargoes with deals at Quebec? Simply because they have not return cargoes from Montreal. How is it that one of our largest steamship lines—the Allan line—is obliged to place and maintain a portion of its vessels on the American route, and how was it about a couple of seasons ago that, but for the subsidy accorded for the conveyance of the mails, it would have abandoned the Halifax route?

THE TRUTH ABOUT THE WESTERN TRAFFIC.

Before going thoroughly into this subject and when I was not conversant with the matter, I was, like many others, carried away by all the visionary ideas about the great western traffic. But when one comes to study the question seriously, where are they? And those vast producing plains of the west, where are they? In American territory and in the hands of the American people, with every facility to handle their own traffic on their own ground. We have no great amount of western traffic of our own to offer, so that practically, until our own North Western prairies have been settled and cultivated, we will be reduced to the transportation of our own surplus of grain. In fact, only for the cattle trade, which has assumed extensive proportions of late years, it is questionable whether we would not already have witnessed a serious diminution in the number of our actual steam traders. Except what our own grain and produce forwarders are willing to handle on their own account and for which they are obliged to go to the Chicago market, we have in reality no great amount of western traffic.

Even when our own North West will have become a great producing area, who will control its market, if not the great New York and Chicago markets, as to the route grain and other products must follow to the sea.

We should not lose sight of the fact, too, that our Canadian Pacific, which we are actually building at such enormous expense, will in the future have to find an outlet to the seaboard through American territory, if not in summer, at least in winter, unless the Government make Halifax or St. John a winter port.

While our railways, through an insufficient rolling stock, are unable to handle the traffic offering, do we find our water-ways increasing their business in proportion ?

DEEPENING OF THE CHANNEL BETWEEN QUEBEC AND MONTREAL A DELUSION.

I therefore safely conclude that, of itself, the deepening of the channel between Quebec and Montreal is a delusion as far as the increase of the western traffic is concerned, unless it form part of a great system of improvement first of all our water courses west of Montreal. To my mind, when contemplating the general trade of the country and the hostile influences we have to contend with in order to secure our own traffic and prevent it from seeking other channels, it is a very poor argument in favor of Montreal that we can only obtain and preserve that traffic on the condition that a little more water be given to navigation east of that port, when all conversant with the subject know well that the improvements, of which more anon, should be to the west of it, if we are seriously anxious about securing a more extensive traffic from the west.

The artificial channel between Greenock and Glasgow and the proposed scheme of a ship channel between Liverpool and Manchester have been quoted in support of the project to deepen the channel between Quebec and Montreal. But they furnish no argument in favor of Montreal's pretensions, as the Glasgow improvement was carried out not by the Imperial Government but by the city of Glasgow

itself, and the projected canal to Manchester is to be built by a joint stock company, and not at the public expense. All such undertakings are laudable and the public spirit of the business men of those cities cannot be too warmly commended. No one can blame them for doing at their own cost what the Harbour Commission of Montreal would like to saddle upon our Federal Government without facts or figures to show how the great western traffic, of which so much is said in a general sense, is to be attracted by a few inches more or less of water in the channel between Quebec and Montreal, and without any well digested scheme demonstrating satisfactorily how that traffic is to be secured through our water stretches.

The argument has also been used that the more inland ships can go, the better it is for trade. Now, on that principle, Ontario would have a perfect right to demand a ship channel to the port of Toronto or to Niagara.

The Montreal papers have been latterly making frequent allusions to the increased traffic last spring upon the Erie Canal, attributing at the same time that increase to the abolition of the canal tolls. It is rather premature yet to jump at such conclusions. In a year or two hence, it will be time enough to say whether or not the increase in question is really ascribable to that cause. When we obtain the full returns for the fiscal year 1883-84, we will then be in a position to judge whether the increase applies to the Erie Canal alone and not to the railways as well. We will then be able to decide with more certainty if this increase be due to a better demand for grain than during the previous year and if it will be of a permanent nature owing to the total abolition of tolls.

The apparent increase of traffic on the Erie Canal last spring is also used as an argument for the abolition of our

own canal tolls in order to better compete with the New York route.

We can have no objection to see the tolls on the St. Lawrence route abolished, as the total amount of revenue raised from that source does not cover the outlay for repairs, maintenance and management. But I will not go into this question now, as it is dealt with more fully in a subsequent portion of the present review.

I feel certain, however, that whatever course may be adopted, it will not materially affect the result.

I think I have now said enough to prove that the deepening of the channel between Quebec and Montreal cannot be considered as a public work, if undertaken alone and not in conjunction with a well devised scheme of general improvement of our water-courses west of Montreal—the volume of water east of that city being quite sufficient for actual trade requirements.

While walking one afternoon last spring on Dufferin Terrace, I was struck with the spectacle of so many large sailing ships—over 100—at anchor in the stream opposite Quebec, with a harbor capable of comfortably accommodating several times as many more. Under the circumstances, is it surprising that I should have been led to contrast this magnificent spectacle with the pretensions of Montreal, with its diminutive port, without room for more than fifty steamers, which cannot leave the wharf without having their heads first turned down stream by two or three tugs and without being obliged to steam away at once the moment they are head on, otherwise the least deviation of the helm or the slightest sheer would send them aground? Such is the port to which its partisans apply the high sounding title of the *port of the St. Lawrence* and which they loudly proclaim *the head of navigation.*

The time is not far distant, I trust, when in Quebec we will be in a position to give the vessels that frequent our port a very different kind of harbor accommodation and that, too, without asking the Government to provide it for us.

Railways nowadays are accessible and bring the traffic to the best Atlantic ports; and a few miles more or less does not count much in their case, especially when engaged in a through transit traffic.

THE MONTREAL HARBOR DEBT AND THE DUTY OF THE GOVERNMENT.

Would the Federal Government have been justified in yielding to the pressure exercised by the Montreal Harbor Commission to induce them to assume the debt already contracted to date for the deepening of the channel between Quebec and Montreal and to take off the hands of the Commission the responsibility of all future improvements, such as giving the channel a further depth of 2½ feet ?

I think the Government acted very wisely, indeed, in not assuming this grave responsibility. They showed good judgment in declining to be dragged into a policy, which would have thrown upon their shoulders a serious and difficult problem, whose solution, if adopted, would have to embrace the general improvement of all our water-courses. Before committing themselves to such a policy, they would have to carefully consider :

1o. The nature and extent of the requisite improvements in our water-courses to enable them—according to the theories of those in favor of water routes—to compete successfully with our neighbors for the western trade.

2o. The amount necessary to carry out such improvements, which naturally would have to be extended to all other parts of the Dominion as well as the St. Lawrence.

3o. The utility of this enormous expenditure in the face of the influence exercised by railways for the conveyance of all kinds of goods through the country and to the seaboard ;

Such are the questions which the Government would have to study before adopting any particular scheme of local improvement such as that proposed by the Montreal Harbour Commission.

As regards the first proposition, viz : the nature and extent of the improvements required to utilize to the utmost all our water-courses :—

Leaving aside for the moment the Ottawa route, which, being mostly used for lumber, does not require as great a depth of water as the St. Lawrence route, it is a well known and well established fact that, to render water-courses profitable and useful nowadays to trade and capable of competing with railways, the traffic has to be carried on in large propellers and barges of a carrying capacity of from 80,000 to 100,000 bushels and that without breaking bulk to tidal water.

Mr. Alonzo Richmond, President of the Buffalo Board of Trade, who is greatly in favour of water-courses, in his report for 1877 on the superiority of the water route, is obliged to admit that it can be made to compete successfully with railways only under certain conditions. In the course of his remarks, he says, alluding to the " Comparative Capacity of Vessels " :—

" A very important saving in the cost of freight has been " made by increasing the size of the various crafts employ- " ed. No longer ago than 1842, ordinary lake vessels " carried only about 5000 bushels each ; in 1848, a capacity " of 12,000 bushels was attained ; in 1850, it was about " 15,000 ; in 1857, it was 25,000 bushels ; in 1863, it was " 30,000 bushels ; and now 80,000 bushels are carried—

" the same class vessels being sixteen times the capacity of " those used thirty-five years ago.

" In 1850, the largest propeller on our lakes had a capa- " city of about 600 tons. In 1853, it had increased to about " 800 tons. The size has been enlarged from year to year, " until at the present time there are propellers on the " lakes that carry from 2000 to 2500 tons. By the use of " improved machinery and steam tugs, there is no difficulty " in managing large vessels and propellers. It is found " that, by the use of modern appliances, they can be " handled quite as safely, if not more so, than smaller " vessels in earlier times."

Such is the description he gives of the improved lake tonnage. Large vessels of the kind can only be run upon the lakes where there is a great depth of water, but they cannot navigate the Erie Canal, owing to the altogether insufficient water for vessels of such dimensions. They come down to Buffalo, where they break bulk—part of their cargoes going by the Erie Canal, but the greater portion being forwarded by rail to the sea-board. On page 8 of his report, he further says, after giving a statement of the charges upon the water route, that it is only by similar steamers and barges that lumber can be moved at such low rates. Single steamers or vessels could not pay expenses.

The above applies to a propeller and tow of barges, carrying altogether some 2,000,000 feet of lumber at $1.25 per hundred.....	$2500 00
Expenses for steamer and barges.....	2059 50
Profit.....	$ 440 50

If we double the rate of the down freight, which would even then be not high, the account would stand as follows:

Freight on 2,000,000 feet of lumber at $2.50.....	$5000 00
Expenses as before.....	2059 50
Profit.....	$2940 50

The foregoing is exclusive of insurance and cost of repairs, both considerable items, so that the small vessel barely pays expenses exclusive of insurance and repairs, while the large vessel pays a small profit.

The average cost of repairs is about 7½ per cent.

On page 28 of his report, he adds: "I am sure that a "canal steamer on the Erie canal enlarged so as to use "vessels of greater tonnage, which it has been proved can "carry for so much less cost than those of smaller size, "can take a cargo to New York city from Buffalo in as "short a time as it takes to bring it from Chicago on large "lake propellers, and at as cheap rates. If this is so, we "have no reason to fear the Welland and St. Lawrence "canals, if wisdom governs the policy of our State."

The above was written several years ago; since then things have changed; rates both by rail and water have become much lower; and railways have much improved their carrying capacity, so that they can now do the traffic on more advantageous terms.

WATER ONLY CAPABLE OF COMPETING WITH RAIL ON VIRTUALLY IMPOSSIBLE CONDITIONS.

According to his views, the Erie canal can be made to compete successfully with the railroads by cheaper rates provided larger vessels either towed or propelled by steam can be used, that the time for the trip can be much shortened, and on the condition that the tolls be abolished and these water routes kept at the public expense. In other words, he has confidence in water routes over railroads for cheaper rates, but this can be accomplished only under certain conditions which do not exist, and his expectations as regards the Erie Canal are to be fulfilled on the condition that vessels are made larger and given a greater degree of speed.

Of course, he is entirely in favor of water routes over railways for cheap transportation and I have no doubt that he would be right in his conclusions, if what he

advocates were quite feasible. But every one knows how difficult it is to handle large steamers and vessels from one lock to another and how much time is lost in the work. Of course, if there was no higher level to attain, a deep channel, and of sufficient width, enabling large vessels to pass through without much delay, would be useful. No doubt, the idea which the President of the Buffalo Board of Trade emits would be correct enough as to the cheapness of the water route under certain conditions, although the opinion of the State Engineer of New York does not corroborate it, viz: that if you can have a water route deep enough and with as few delays and obstacles as possible, so that transportation can be accomplished as quickly as possible, the water route would have the advantage over railways for cheapness. The traffic would have to be done by propellers of a large tonnage, which would run down straight from Chicago to Buffalo and thence by a deep artificial channel through the Erie Canal to tide water—said channel to be free of charge and kept up by general taxation.

In other words, they want the Government to spend an enormous amount of money to make an artificial inland channel to fight against the public carriers competing at their own expense for the trade.

Those in favor of water routes point to the example of the abolition of tolls on the Erie Canal as one that our Government should follow. But their argument does not hold good, as the abolition of the tolls on the Erie Canal is not effected at the expense of the Federal power of the United States, but is borne alone by the State of New York, which is anxious to keep the general traffic from going to other ports. The Legislature of the State of New York, in order to struggle successfully for the general western traffic which is now keenly competed for by other more direct ports of shipment, is obliged to make these concessions so as to

prevent its canals from falling into disuse and being wholly abandoned in favor of railways, which ensure quicker and more regular delivery at tidal water.

The Government of the State of New York is not the Federal Government of the country ; therefore we must not confound one power with another. The State Legislature of New York has only one interest in view,which is to favor its own great port, whereas the object of the Federal Government is to look after the general interest of the country.

The distinction is to a great extent the same as between our Local Governments and the Government of the whole Dominion.

Consequently, we can readily understand that, in certain questions, it is in the interest of a Provincial Government to favor certain enterprises with the view of developing its own special resources, and if our water routes were under the control of the Provincial authorities, provided there were no conflicting interests to the contrary, in order to keep the business from going elsewhere, it might, perhaps, be to the interest of a Province to tax itself for the support of a measure that would give an equivalent in return for the sacrifice imposed upon the tax payers.

This is practically the position of the Government of the State of New York, which is quite distinct from the Government of the whole country. That State, in order to benefit itself, is willing to make a sacrifice to keep its shipping trade which is keenly disputed by other rivals.

Its case is also pretty much the same as that of the city of Quebec, improving its harbor at its own cost, and the same as that of the City of Montreal which is doing its best to secure all the traffic possible. But all these, as in the State of New York, are merely local questions and can only be considered as such.

I think I have shown pretty clearly what is the real position of the Erie Canal and under what conditions it might

be made a serious rival to the railways of the State of New York, according to the views of those who advocate the water routes. This idea is not, however, corroborated by the State Engineer, who distinctly says in his report that he does not recommend such an enormous expenditure, as he considers it useless for the object to be attained. It is now time to say something about our own water routes.

THE CANADIAN CANALS.

The same difficulties which are encountered in the case of the American canals make themselves felt here.

The advocates of the water routes are using the same arguments and, to make those routes available in their opinion for traffic, they want, besides the complete abolition of tolls, the canals to be enlarged and deepened so as to permit of large vessels coming down to tide-water without breaking bulk.

No doubt—according to the views of those favorable to water routes—if our water routes are to be utilized and made as serviceable as possible, if they are to compete successfully with railways, they must undergo a complete transformation, such, for instance, as a uniformity of depth, width, length of locks, &c. With the exception of the Welland and the Lachine, all our other canals have no more than 9 feet—that is on the St. Lawrence canals. On the river Ottawa, the depth is still less, not more than 6 to 7 feet, and from Rideau to Kingston at the edge of the eastern end of Lake Ontario, 4½ to 5 feet.

The number of locks between Ottawa and Kingston is 47, both ascending and descending, total lockage 446¼ feet, 282¼ feet of a rise and 164 fall at high water.

Dimensions of locks.....	134 by 33
Depth of water on the sills.....	5 feet
Navigable depth through the several reaches.....	4½ feet

Depth of water on the sills.....	5 feet
Navigable depth.....	4½ feet
Breadth of canal reaches at bottom...	60 feet in earth
do do do	54 " in rock
do at surface of water.....	50 " in earth.

On the Richelieu and Lake Champlain canals the mean depth of water is 7 feet.

The Trent River Navigation, from Trenton at the mouth of the Trent, on the bay of Quinte, on Lake Ontario, to Lake Huron.

The term "Trent River Navigation" is applied to a series of water stretches, which do not, however, form a connected system of navigation, and which, in their present condition, are useful only for local objects.

I do not intend for my present purpose to go into details as regards the Ottawa, the Chambly or Champlain canals, but will limit myself to the canals on the St. Lawrence in which we are more immediately interested, as the latter is supposed to be the route to be utilized for the western traffic.

I will first give for the public information a description of the canals between Montreal and Lake Erie, in order that an idea may be formed as to their actual state of efficiency for the western traffic, and also as to what is demanded by those who are interested in the water routes in order to reach tidal water more advantageously than at present.

Official report of the Minister of Railways and Canals, for fiscal year ended 1st July, 1882 :—

Lachine Canal.

Length of canal	8½	Miles.
Number of locks	5	
Dimensions of locks	270	feet by 45.
Total rise in lockage	45¾	"
Depth of water on sills, at two locks	16	"
Depth of water on sills, at three locks	14	(14) feet.
Breadth of canal at bottom, mean width,	150	feet.
Breadth of water at canal surface	120	"

This canal overcomes the St. Louis rapid, the first of the series of rapids, which bars the ascent of the river St. Lawrence.

Beauharnois Canal.

Length of canal	11¼	Statute miles.
Number of locks	9	
Dimensions of locks	200	feet by 45.
Total rise in lockage	82½	"
Depth of water on sills	9	"
Breadth of canal at bottom	80	"
" " at water surface	120	"

This canal commences on the south side of the St. Lawrence, 15½ miles from the head of the Lachine canal. It connects Lakes St. Louis and St. Francis, and passes three rapids known respectively as the Cascades, the Cedars and the Coteau.

Cornwall Canal.

Length of canal	11½	Miles.
Number of locks	7	
Dimensions of lock	220	feet by 55.
Total rise in lockage	48	"
Depth of water on sills	9	"
Breadth of canal at bottom	100	"
" " at water surface	150	"

The Cornwall canal extends past the Long Sault rapids.

Farran's Point Canal.

Length of canal	¾	Mile.
Number of locks	1	
Dimensions of lock	200	feet by 45.
Total rise in lockage	4	"
Depth of water on sills	9	"
Breadth of canal at bottom	50	"
" " at water surface	96	"

From the head of the Cornwall canal to the foot of Farran's Point canal the distance by the river St. Lawrence is 5 miles.

This latter canal enables vessels ascending the river to avoid the Farran's Point rapid.

Descending, vessels run the rapid with ease and safety.

Rapide Plat Canal.

Length of canal	4	miles
Number of locks	2	"
Dimensions of locks	200	feet by 45
Total rise in lockage	11¾	"
Depth of water on sills	9	"
Breadth of canal at bottom	50	"
" " " surface	90	"

From the head of Farran's Point canal to the foot of the Rapide Plat canal there is a navigable stretch of 10½ miles.

This canal was built to enable vessels ascending the river to pass the rapid at that place. Descending, vessels run the rapid safely.

Galops Canal.

Length of canal	7⅞	miles
Number of locks	3	"

Dimensions of locks	200	feet by 45
Total rise in lockage	15¾	"
Depth of water on the sills	9	"
Breadth of canal at bottom	50	"
" " surface of water	90	"

From the head of the Rapide Plat canal to Iroquois at the foot of the Galops canal, the St. Lawrence is navigable for 4½ miles. This canal enables vessels to overcome the rapids at Pointe aux Iroquois, Pointe Cardinal, and Galops.

Welland Canal.

(Main Line from Port Dalhousie, Lake Ontario, to Port Colborne, Lake Erie.)

By the works of enlargement, passage is now afforded, at all stages of the Lake Erie level, to vessels drawing 12 feet of water, excepting at the point where the canal is carried by an aqueduct over the Chippewa River.

Hence, the necessity of continuing to use the old work, pending the building of the enlarged aqueduct, the completion of which cannot be looked for before two years, renders care advisable, and the draught of vessels using their own motive power should not at this point exceed 11½ feet; the draught of vessels in tow, however, may be 12 feet. At periods of low water in Lake Erie, and especially during a continuance of strong easterly winds, the draught of all vessels, to enable them to pass freely through the present aqueduct, should not exceed 11½ feet.

(Enlarged or New Line.)

Length of canal	26¾ Miles.
Pairs of guard gates	2
Number of locks, lift	25
Guard	1

Dimensions (old) { 2 locks, 200 by 45. / 1 tidal, 230 by 45. / 24 locks, 150 by 26½. } (New 270 by 45)

Total rise in lockage..... 326¾ feet.
Depth of water on sills..... 12 "

The difference in level between Lake Superior and the point on the St. Lawrence near Three Rivers where tidal influence ceases is about 600 feet.

The Dominion canals, constructed between Montreal and Lake Erie, are the Lachine, Beauharnois, Cornwall, Farran's Point, Rapide Plat, Galops and Welland. Their aggregate length is 70½ miles; total lockage (height directly overcome by locks) 533¼ feet; number of locks 53.

Communication between Lakes Huron and Superior is secured by means of the Sault Ste. Marie Canal situated on the United States side of the channel.

This canal is a little over a mile in length and has one lock 515 feet long, 80 feet wide, with 16 feet of water on the sills, and a lift of about 18 feet.

St. Lawrence Canals.

In 1841, at the time when the system of canals between Montreal and Lake Ontario was designed, it was in contemplation to afford a depth, at all stages of the St. Lawrence waters, of nine feet, which, from the data then possessed, was seemingly secured through the works proposed.

The River St. Lawrence is, however, from various causes, subject to fluctuations, whose extent it was impossible, at the time when these canals were constructed, to establish with precision, and the continued observations and experience of subsequent years have shown that at

certain periods of low water this depth cannot be maintained.

The distance between Montreal and Kingston via the canals and unobstructed navigation is about	169½	miles.
Kingston to Port Dalhousie, Lake Ontario	170	"
Welland Canal	27	"
Port Colborne to Amherstburg, Lake Erie	232	"
Amherstburg to Windsor River, Detroit	18	"
Windsor to Foot of St. Mary's Island, Lake St. Clair	25	"
Foot of St. Mary's Island to Sarnia, River St. Clair	33	"
Sarnia to foot of St. Joseph Island, Lake Huron.	270	"
Foot of St. Joseph Island to Sault Ste. Marie, River St. Mary	47	"
Sault St. Mary to the Head of Sault St. Mary Canal	1	"
Head of Sault St. Mary, Point aux Pins, River St. Mary	7	"
Point aux Pins to Duluth, Lake Superior	290	"
	1289½	"

All the figures I have just given you as regards the depth and dimensions of the canals are taken from the report of the Minister of Railways and Canals for the past fiscal year ended 30th June, 1882; therefore they can be considered as correct.

The following is an extract from the report of Mr. Wm. Patterson, Secretary of the Montreal Board of Trade, for 1882, showing the comparative distances from Montreal and indicating that the all water route *via* the Welland Canal is 338 miles longer than the rail and water route *via* Midland City :

"*From Montreal to Fort William.*

" 1. By River St. Lawrence, Welland Canal, and Lake Erie, Huron & Superior	1,263	miles.
2. By Railway to Goderich,—thence to Lakes Huron and Superior.	1,006	"
3. By Railway to Owen Sound,—thence by Georgian Bay and Lake Superior	980	"
4. By Railway to Collingwood,—thence by Georgian Bay and Lake Superior	971	"
5. By Railway to Midland City,—thence by Georgian Bay and Lake Superior	925	"

" There will be a sixth line of rail-and-water communication, on the opening of navigation in 1884. It is expected that the Canadian Pacific Railway will be completed to Algoma Mills, on Lake Huron, by the end of 1883 ; and three first class, full-powered swift propellers will ply between that place and Port Arthur on Lake Superior, connecting these with the railway, whence passengers will take trains to Winnipeg and through to the foot of the Rocky Mountains.

" But there is to be another very important line of inland communication in the near future. Ere long, the Canadian Pacific and the Grand Trunk Railways and their combinations will converge at and cross the Ste. Marie River by a bridge at the Sault, thence connecting with the Northern Pacific Railway, and affording it and its connections in the North-Western States, a short route to the sea-board."

The Superintendent of the Welland Canal, in his report, says :

" The amount of business done through the canal has
" been fair up to this date, and some very large propellers
" have passed through, notably the J. C. Gault, from
" Toledo, carrying 43,000 bushels, 15,000 of which had, in
" each case, to be lighted or elevated at the Port Colborne
" Elevator and taken down by the Welland Railway Com-
" pany, and put into the vessel again by their elevator at
" Port Dalhousie. The railway company's charges for that
" service, although very moderate, proved too much to
" admit of the " Gault " successfully continuing the busi-
" ness through our canal and competing with the low rates
" to Buffalo and through the Erie Canal."

We see, by the above statement of the Superintendent, that the Welland Canal, which is the deepest of all our canals, can only allow the passage of vessels carrying no more than thirty thousand bushels. With the exception of the Lachine Canal, all the others on the St. Lawrence have no more than 9 feet of water under the most favorable circumstances, being only available for vessels of a tonnage equivalent to 15 to 20,000 bushels. All these canals have another disadvantage in not being of a uniform size and of an equal depth all through, some of them having one depth in one part and another in another part.

According to the opinion of all parties favorable to waterways, the only chance for a through traffic lies in making all these canals of a uniform length of lockage, depth, &c., so that it is practically admitted that they can be made useful for the western trade only on condition that they can be so improved as to allow vessels of from 50 to 60,000 bushels' capacity coming through to Montreal.

It is only on these conditions that these canals could be fully utilized for the western traffic. To enable large propellers and vessels to get through, the locks would require to be about 300 feet long, the depth to be 14 to 15 feet, and the rise in the lockage to be modified as much as possible to avoid delays, for it is well known that large vessels are very difficult to handle from one lock to another and are liable to occasion accidents to the canals if not very skilfully managed.

According to the evidence before the select committee on inter-provincial trade taken in the session of 1883, it was generally suggested that the canals could only be made of some utility in cheapening freight by giving them a uniform depth all through of at least 12 feet.

At page 38, Sylvester Neelon, Esquire, merchant, miller and ship owner, of St Catherine's :

In reply to the Chairman as to the depth of water in the canals, answers, " 9 feet.

" If the canals were deepened to 12 feet, and the locks " made, say, 275 feet long, the vessels could carry larger " cargoes and thus reduce freights.

" The largest propeller that has been built is one at Hamil- " ton and one by myself at St. Catherine's. Mine is an iron " boat, 180 feet long, with a 36 feet beam and 16 feet hold, " will carry 50,000 bushels of grain, with 12½ feet of " water."

A good deal of the evidence given before that committee shows that experienced men do not seem to have much confidence in the water route increasing the inter-provincial or the through traffic, except in so far as it would serve as a check on our single lines of railway, which have the trade in their own hands. In fact, their only hope appears to rest upon creating a competition to the railway lines.

They all admit that no steam or barge lines on the water routes can subsist wherever they run parallel with lines of railway. They agree in saying that, as soon as a line of steamers is started, down go the railway freights, so that in a short time the vessels are run off, not being able to stand the competition.

At page 13, Mr. James A. Chipman, flour and commission merchant, of Halifax, N. S., being examined, says : " I am persuaded that, without some arrangement by Par- " liament or Government, it would be impossible for any " line of propellers engaged in the water service to exist " against the action which would be brought to bear upon " them by the railway service. I mean that, supposing a " line of propellers was established to connect with the " Intercolonial Railway at Levis and at the Niagara District,

" calling at the intermediate ports, unless that line of pro-
" pellers had a subsidy from the Government and a through
" traffic arrangement with the Intercolonial Railway, the
" Grand Trunk would kill off any moderate sized company
" of ordinary means, as soon as they would go into opera-
" tion, so, that in the present state of things the water-ways
" are wholly useless, as no company could be formed to
" work against the Grand Trunk without the aid of Par-
" liament."

At Page 40, Mr. Sylvester Neelon says: " No doubt the
" city of Montreal has diverted the trade from the city of
" Quebec, by deepening the channel at quite a large ex-
" pense, but the men in Montreal holding real estate to-day
" are increasing it at the cost of the people, and will con-
" tinue to do so, as it is the consumers and producers who are
" paying their harbour debt and the city of Montreal pays
" nothing comparatively."

At page 40, the same party, in answer to a question, says:
" No doubt vessels have been working for next to nothing,
" but this has been largely caused by the scarcity of freight
" and the competition between rail and water." He admits that for the last few years grain from the west by water to Montreal has been carried for nothing.

" *Q.*—But the city of Montreal wants the Government to
" assume its harbour debt ?

" *A.*—In that case I think the city of Montreal should
" shoulder one half of the debt; New York being a free
" port of entry, vessels go there from all parts of the world,
" and there are often more vessels offering there than
" freight."

Mr. Neelon evidently confounds the State of New York with the Federal Government, as the free port of New York is at the expense of that State and not at that of the Federal Government. But all the evidence adduced points unanimously to the conviction that no line of propellers from the Niagara district to Point Levis, could subsist without a subsidy from Government of at least $10,000 to each boat.

In other, words a line of the sort would have to be kept up at Government expense and be thus constituted a competitor to all other private enterprise. However, all are about unanimous in the opinion that our canals must be deepened in order to compete with our railways and to make them useful for the western traffic; although they are not even sure that any improvement upon them will attain the object desired. But they advocate that expenditure, thinking that thereby they will succeed in keeping down railway freights.

UNCERTAINTY OF BENEFICIAL RESULTS FROM CANAL IMPROVEMENT.

I think I have said enough to show that, to make our water routes of any use as a means of securing a part of the through traffic, they would require to be deepened, &c., and even then experienced men, supposed to have some knowledge of the subject, do not feel sure that the water routes would secure the traffic from the west as against our railways.

It is clear from all the evidence adduced that experienced men in the water routes unanimously concur in the opinion that the canals should have a uniform depth of from 12 to 15 feet, locks of 300 feet, &c., and that they cannot be utilized for the purposes of a large western traffic unless made to admit the passage of propellers of 50,000 bushels carrying capacity from Lake Erie to tidal water.

It is not many years since the Legislature of the day contemplated giving to our canals a depth of 14 feet, for we see that Mr. Page, Chief Engineer of Public Works, alludes to the question in his reports for 1877 and 1880 on the progress of canal enlargement between Lake Erie and tidal water.

On page 1 of this report, there is a letter of his addressed to the Secretary of Public Works and dated at Ottawa the 30th January, 1877, as follows :—

"SIR,—In compliance with instructions conveyed in "your letter No. 37,763, I have the honor to submit the "following report on matters connected with the enlarge- "ment of the canals and other works in progress on the "direct line of water communication between the western "lakes and the head of navigation at Montreal.

"It may, however, be stated, that all recent general "reports on these subjects have had reference to the con- "struction of canals, 100 feet wide at bottom, with locks "270 feet long between the gates, 45 feet in width, and "with a depth suited to the passage of vessels drawing 12 "feet of water—these being the dimensions recommended "by a special commission appointed (in November, 1870,) "to enquire into matters connected with the inland "navigation of the Dominion—a conclusion that was sub- "sequently assented to by the Government and com- "municated to me by, your letter of the 22nd July, 1871. "These instructions continued to be acted upon until "April, 1875, when your letters Nos. 29,863, and 29,864 "were received."

At that date, the Government's policy would seem to have been to give an uniform depth of 14 feet to all the canals, but this policy appears to have been relinquished.

I believe that the works on the St. Lawrence canals were not continued by the Government on account of their prospective cost and for other reasons.

THE UNIFORM DEEPENING OF THE CANALS A CONDITION PRECEDENT TO THE FURTHER DEEPENING OF THE CHANNEL BETWEEN QUEBEC AND MONTREAL.

Consequently, the Government should not listen to the demand of the Montreal Harbour Commission until it is prepared to resume the policy of giving an uniform depth of 14 feet to all the canals. It will be then time enough to consider the question of the further deepening of the channel between Quebec and Montreal. Practically, the Government stands committed to the policy of first making

the St. Lawrence canals of an uniform depth all over of 14 feet. That policy was regularly assented to, and, if it has been effectually, it has not yet been officially abandoned.

But it is well to note that by the time we shall have properly deepened the channel through these water routes, we will have long lost the through transit traffic from the West. Whatever therefore may be urged for or against the deepening of the channel between Quebec and Montreal, I maintain that the canals should be first improved, before taking any account of the channel east of Montreal, in order to give it the color of a public undertaking.

In that case, the Government would show the earnestness of its desire to place our water routes in as great a condition of efficiency as possible with the view of affording a cheap and economical outlet to the western traffic. But no one acquainted with the subject can for a moment be persuaded that the mere deepening of the channel between Quebec and Montreal will increase the general traffic of the country.

If the Government, however, should decide upon the continuation of its canal improvement policy and carry it out to completion, Montreal's claim might then be considered as part of the scheme of general amelioration. But the former should be realized before the latter.

RESULTS OF A GENERAL SCHEME OF CANAL IMPROVEMENT.

But, supposing such a general scheme to have been decided upon, what would be the nature of the improvements required in the channel between Quebec and Montreal? Would a further depth be found sufficient? Doubtless, if the tonnage of our Atlantic steamers was not likely to further increase, a depth of 27½ feet would answer the purpose. But there is no saying what changes may take place in the next few years in the size of Atlantic

steamers. If we judge of the future by the past, it is safe to conclude that the proportions of their tonnage will continue to augment, for it is now a recognized axiom that the larger a steamer, the more economical is its carrying capacity and the more profitably can it be run; and, under such circumstances, it will not be a depth of 27½ feet, but a greater depth that will be needed.

I have heard it urged, however, that the steamships of the future are likely to increase rather in breadth of beam and that there will be no increase in their draught, which would consequently obviate the necessity of any further deepening of the channel; but it remains to be seen whether this idea will be realized and, if so, whether it will be successful in practice; and here we have another strong argument against the Government undertaking the further deepening of the channel, as, in that case, the present draught of water between Quebec and Montreal will be sufficient.

But, at any rate, if the waterways of Montreal are to be deepened, it would then be necessary under these circumstances to enlarge the width of the channel from 300 to 600 feet, for, if the traffic in large ocean steamers increases between Quebec and Montreal, a 300 feet channel would be too dangerous for safe navigation. As it is, it offers serious difficulties and it is notorious that, despite the skill of the Montreal pilots, accidents are of frequent occurrence. This is, of course, not surprising, as every one conversant with the subject can readily understand the many dangers to which a steamer of 400 or 500 feet is exposed in moving in so cramped a space. For instance, if a steamer of that size had to check its headway to get clear of one or more other steamers coming in the contrary direction or to avoid any other obstacle such as the fogs which so suddenly spring up in that quarter, and if it did not happen to answer its helm as quickly as might

be desirable under the circumstances, the least sheer would send it aground.

These are the improvements needed if the river west of Montreal be so ameliorated as to permit propellers and barges of a large tonnage to come through to Montreal and Quebec without being obliged, as at present, to tranship at Kingston into small barges.

In fact, to meet the views of the advocates of the water route, our system of canal navigation would require to be considerably modified in order to compete successfully with rival routes. It is needless to say that the adoption by the Government of such a policy would entail an enormous outlay, which would have to be borne by the public at large, without any direct return in the shape of interest upon the capital invested in the undertaking, considering the admission that our water routes can only be effectually utilized on the condition of a complete exemption from tolls as in the case of the Erie Canal.

If the Government were to make such a policy of general improvement a part of its programme—although I am not prepared to say that it would be acting wisely in so doing—I nevertheless could not but admit that those improvements should then be regarded as works of a public character, and that, as such, they could not be opposed as being purely local undertakings. Under this phase, the question assumes an altogether different aspect from the mere deepening of an artificial ship channel to Montreal without the accompaniment of other improvements more urgently needed for the western traffic.

NECESSITY OF CAUTION.

Consequently, I can only hope that the Government will commit itself to no policy on the subject without having previously well considered its necessity in the interests of

the Dominion at large and the best system to be adopted for the purpose of utilizing our water routes to the fullest extent. The consideration of such a policy would also necessarily involve the question of its cost and the nature of the improvements actually required to further develop the traffic of the country, especially in view of the actual achievements and the future possibilities of steam power on sea and land, not overlooking what is presently occurring under our own eyes upon our own water routes and those of our neighbors, and what is being and is likely to be accomplished by railways in the future.

Now, as to the cost of carrying out such a policy and its consequences :

The Government has on its hands a very serious undertaking in the building of our Canadian Pacific Railway by a Syndicate. We should not lose sight of the important fact, too, that it has to build and complete at its own expense 554 miles of that railway, a portion of which in the Rocky Mountains is sure to swallow up an enormous amount of money. In addition to the transfer of these portions to the Syndicate when completed, the Government is obliged to furnish $25,000,000. Besides the Canadian Pacific, the Government railways and the subsidized roads will also call for a further large expenditure. These various enterprises are already absorbing a considerable amount of our revenues and swallowing up the available surpluses incidental to our actual system of protection. Within the last few years our revenues have exceeded our total expenditure by several millions annually, but these surpluses cannot be looked upon as permanent things, as we do not know the day when our receipts will begin to fall off again.

We are fast developing manufactures, which will before long supply in great part the wants of our own people, to the reduction in the near future of our importations. During

the last few seasons, we have been blessed with good harvests and the lumber trade has been favorable, but a depression in these two items would at any moment further lower our consumption of foreign goods. It should not be forgotten that, if the Government is serious respecting the improvement of our waterways, it will have to pursue a vigorous policy at once ; otherwise these improvements will be too late, as the water route is intended to create a competition against railways in order to keep freights low, although I do not myself fear much on that head, because our railways will be obliged, as far as the through traffic is concerned, to compete energetically with the American lines ; otherwise this traffic will rapidly find its way to those lines; and, for the local trade, our water-courses will always operate as a check upon the railways in summer ; but, in winter, we are at the mercy of the latter, wherever there are no rival roads.

DANGERS TO BE APPREHENDED.

Sir Charles Tupper, in his railway explanations to the House, when speaking of the ways and means by which the large expenditure of the country for railways was to be met, had to include in his calculations all our available surpluses for the next few years, so that all our disposable means from all sources will be absorbed by the payment of the immense sums demanded from the Government for the construction of our Canadian Pacific, and any diminution in value of our present large importations would not only entail a disappearance of those surpluses, but necessarily involve us, if not in embarrassment, at least in the necessity of borrowing to meet our engagements.

Under the circumstances, it can be readily understood that with its present liabilities towards the Canadian Pacific Syndicate, it is out of the question for the Government to adopt a policy that would necessarily entail an outlay

of millions, without having first well and thoroughly studied it in all its aspects; for it must be borne in mind that if the Federal authorities once admit the pretensions of the Montreal Harbor Commission, they will open the door to a host of other claims just as urgent and well founded. Halifax, St. John and Quebec, would have an indisputable right to ask for similar advantages.

The works on our canals are proceeding very slowly. Indeed, at the rate at which they have been progressing for the last few years, it will take some twenty years and more before they are completed and made capable of giving to the St. Lawrence all the facilities which the exigencies of the case require; so that, by the time an uniformity of depth will have been secured, the contest for the carrying trade between rail and water will have been long decided. We must not overlook the grave fact that our great competitors for that trade are our neighbors, who are already armed with all the appliances necessary for moving the traffic from one end of the country to the other. Neither should we lose sight of the equally important fact that we propose to compete with them on their own ground.

INSUFFICIENCY OF ACTUAL CANAL REVENUE.

Up to the 30th June, 1882, our canals had cost us, for construction and enlargement, a total sum of $43,418, 602.-87, their total revenue being equal to an interest of ¾ per cent per annum.

The cost of the Welland canal, to 1882, with its construction account still incomplete, was $20,309,365.09—its revenue from tolls amounting to $116,350.88 or a little more than one-half per cent. Its account for 1882 stood as follows:—

Welland Canal.

Ordinary repairs	$104,744 00
Staff and maintenance	74,641 00
	$179,385 00
Revenue	116,350 00
Deficit	$63,035 00

So that the Welland does not pay the cost of its own repairs and maintenance.

The St. Lawrence canals cost about $14,000,000.

Revenue, $114,578 or a little more than three quarter per cent on the outlay. Their receipts and expenses for 1882 were as follows:—

St. Lawrence Canals.

Ordinary repairs	$52,010 00
Maintenance	82,604 00
	$134,614 00
Revenue	114,578 00
Deficit	$20,036 00

Expenditure on canals, Dominion of Canada, during the fiscal year ended 30th June, 1882:

Construction	$1,633,166 41
Repairs	207,770 71
Staff and maintenance	235,120 09
Total expenditure	$2,076,057 21

The revenue accrued from the working of the different canals during the past fiscal year 1881-1882, as ascertained from the Department of Inland Revenue, was as follows: *vide* page 11 of Reports of Canals for 1882—for details:

Tolls	$304,011 40
Hydraulic rents	22,326 31
Total revenue	$326,440 71
Total expenditure for repairs and maintenance.	442,890 80
Excess of expenditure over revenue	$116,450 09

So that the tolls levied on all our canals were insufficient to cover our total canal expenditure for repairs and maintenance, exclusive of construction account and interest on the outlay.

We see what has been expended upon our canals and still we have not a depth even in the Welland canal of more than 11½ feet at certain seasons.

ESTIMATED COST OF CANAL IMPROVEMENT LIKELY TO BE LARGELY EXCEEDED

To give an additional depth—say an average of 14 feet—it would require an additional expenditure of millions. According to the Engineer in Chief, to increase the draught of water to 14 feet in the St. Lawrence canals including the Welland canal, an additional outlay of $8,500,000, would be required.

I do not wish to dispute Mr. Page's correctness in the connection, but our experience teaches us that, as a rule, it is hard to give in advance more than an approximate estimate of such extensive works. In any case, the estimates of the original cost of our canals has been exceeded, and Mr. Page himself only gave this estimate as an approximate one. The additional cost to make them 12 feet deep on such works as have been undertaken would involve an expenditure all through more or less of $20,000,000 exclusive of the $8,500,000 for a 14 feet channel, making in all about $30,000,000.

In his report on the progress of canal enlargement between Lake Erie and Montreal, bearing the date of the 30th January, 1877, Mr. Page—at page 66—gave the following estimates :—

Welland Canal.

Original estimates for a draught of 12 feet.....	$9,240,000
Adapting canal and the different entrances to a depth of 14 feet on the lock sills....	3,000,000
	$12,240,000

St. Lawrence River and Canals.

Williamsburg Canal—original estimates.....	$2,110,000
Cornwall " " "	2,160,000
Beauharnois " " "	2,450,000
Lachine " " "	5,920,347
Deepening the bed of the river at various places..	1,520,000
	$14,160,347
To deepen the St. Lawrence Canals and river between them to pass vessels drawing 14 feet, will cost at least an additional sum of.....	$5,500,000
	$30,200,000

The Welland and Lachine Canals are the only two canals that have depth—the former having 12 feet, while the latter has 14 and 16 feet. All the others have only a depth of 9 feet.

The amount expended on the Welland Canal to last year was $20,309,365. The estimated cost of its 12 feet channel was $9,240,000, so that the estimate was actually exceeded by upwards of $3,000,000.

Consequently, my estimate of the cost of giving an uniform depth of 14 feet all through to the St. Lawrence canals, with uniform locks of 270 feet by 45 wide, with 100

feet at bottom, which is put down at $20,000,000 to $30,000,000, is not exaggerated. But, if we judge by what it has cost to give a uniform depth to the Welland Canal, it would take fully the amount stated.

Mr. Page puts down his estimated cost at $30,200,000. But since then $19,000,000 have been expended up to the 30th June, 1882, and yet the works are not completed on the Welland for a 12 feet channel, those on the Lachine are also unfinished, and the St. Lawrence canals have scarcely been touched ; so that, to carry them out to completion, the cost will not fall far short of the amount stated. Then, there are the system of the Ottawa navigation and the Rideau Canal, which will also require to be improved to meet the views of the advocates of the water routes ; while the Richelieu and Lake Champlain system will further absorb a large sum for needed improvements.

The canals on the Ottawa and from Rideau to Kingston would have to be improved, and it would absorb several millions to make a proper ship channel between Quebec and Montreal. But it is further claimed on behalf of Montreal that it should be made a free port. In that case Halifax, St. John and Quebec would expect and demand similar privileges; otherwise there would be favoritism charged for the advantage of one place over another. The next thing would be the abolition of tolls on our canals, which would not be a serious thing, as the revenue derived from them does not exceed $\frac{3}{4}$ per cent, and in 1881 a reduction had already been made. The small amount derived from our St. Lawrence canals cannot have been a serious impediment to the western traffic, as, besides this reduction in the tolls, our lake vessels have been working at unremunerative rates, and it is admitted that, to compete with New York, grain had to be brought down at the same rate as it would have been by the New York route.

CONSEQUENCES OF FAVORING MONTREAL.

What I have just cited will give an idea of the expenditure which the Government would have to make to place our water routes in such order as would enable them to compete for an additional amount of traffic.

These public works would swell our public debt by two or three millions per annum for interest alone, and this will most assuredly be the result if the Government once undertakes to build a ship channel for Montreal. In spending a large amount of money upon our water routes without deriving any returns upon the capital invested, not even a revenue sufficient to cover the cost of superintendence and repairs, our Federal authorities will assume an immense responsibility, considering that they will then take upon themselves to a certain extent the role of public carriers and thus seriously interfere with vested rights and private enterprises.

I do not know how the Grand Trunk and the Canadian Pacific—the latter being specially built for the purpose of opening out the North West and of carrying through our own territory all the products expected to be raised in that part of the Dominion, whenever it shall have become more settled—would view the adoption of such a policy by the Government.

Would St. John and Halifax look complacently on this one-sided policy ? Have they not a perfect right to demand that either place should be made our winter port, with much better reason than Montreal to be considered the head of navigation ?

It will thus be easily seen that, if the Government was once to yield to such a policy, there is no saying where the expenditure would stop.

Before the Committee struck last session for the purpose of taking into consideration our inter-provincial trade and how to best develop it, it was suggested to have a line of propellers plying between Toronto and Levis, but at the same time, as already stated, it was admitted that this line could only be made to work successfully provided it was subsidized by the Government to the extent of $10,000 per boat for each season.

The Government, in that case, would be at once entering into competition with the Grand Trunk Railway, Richelieu Co., our Gulf Port steamers, and all other private interests concerned.

USELESSNESS OF SUCH VAST EXPENDITURE.

But is there any real necessity for launching into all this vast expenditure for the improvement of our water routes? This is the question I now propose to consider.

The various improvements I have specified would absorb an enormous sum, and I do not think I exaggerate in setting it down at $50,000,000, which, added to what has already been expended on our water routes, would bring their cost up to about $100,000,000, in round figures. But, in addition to the absorption of this enormous amount of capital, which would increase our annual expenditure by at least some two or three millions for interest, we would also have to provide for the annual cost of management and repairs, seeing that upon the abolition of the tolls in order to compete with the Erie Canal we would derive no revenue from our canals. At present, ordinary repairs and superintendence cost the country upwards of $400,000 per annum, and naturally, with the extension of the works, we would have to prepare for a corresponding increase of this figure—for an augmentation, which would bring these $400,000 up to a million.

The Harbor Commission of Montreal and other advocates

of the water routes are fond of referring to the example of the Erie Canal; and they claim a similarity of privileges in order to be able to compete successfully with it. I think I have sufficiently demonstrated already that for years a gradual reduction of tolls and charges on the Erie Canal has been taking place, to such an extent, in fact, that during the fiscal year ended in 1882, only $650,000 were collected from all sources, and that, notwithstanding such reductions, there has been no increase of traffic for a period of twenty years. This sum of $650,000 only represents a small fraction of a percentage on the outlay. It is therefore clear that the total abolition of tolls on the Erie was adopted for the purpose of increasing a business which is actually seeking other outlets. The outcry against our own canal charges is not serious, as the amount collected last year was only a trifle. Consequently, the failure of our water routes to attract a larger traffic cannot be attributed to that cause, and surely no one can be in favor of such routes, when they cannot even pay their own ordinary running expenses. It must strike every intelligent mind that, if the traffic on the Erie Canal had been a good one or at least had been increasing from year to year, a demand for the abolition of the tolls would never have been heard or thought of. It is also obvious that the abolition policy adopted by the State of New York has not improved the Erie's traffic, and yet, in face of this fact, a similar policy is demanded with regard to our own canals, under the pretext that they have to contend with the Erie Canal. It seems needless to say that this argument cannot hold. Virtually, we have derived no revenue worth mentioning from our canals, and no reasonable man will pretend that the trifling three-quarters of one per cent collected from tolls is such an obstacle as would militate against an increase of traffic over our water routes.

But what do the advocates of the water routes want to render the latter useful? In their opinion, the canals should

be given a uniform depth of 14 feet and no charges should be levied or revenue derived upon the cost of the improvements. In other words, they want to saddle the tax-payers with an additional burthen of from four to five millions annually, without the certainty even of ultimately securing the much coveted western trade.

An attentive perusal of the evidence given before the Committee on inter-provincial trade last session shows an unanimous admission on the part of the witnesses that wherever lines of vessels come in contact with railways they cannot successfully compete with the latter, but not one of those witnesses speak with certainty as to the likelihood of the great western traffic being really secured by the enlargement of our canals.

Now, suppose for an instant the advocates of the water routes to be correct in their conclusion—I am giving this, bear in mind, merely as a supposition—what would become of our lines of railway in the event of the water routes becoming the great channels for the through transit and the local traffic? They would naturally be run off the field. But would that contingency be desirable, especially in view of our long winters? Where would have been the use of building the Canadian Pacific, the Intercolonial, North Shore and our various other roads, including the Grand Trunk, which has been so serviceable to the country, if the Government were to undertake to make at an enormous cost a ship channel and to keep it up at its own expense, thus offering serious opposition at the same time to private enterprise?

LOWER RATES BY WATER COUNTERBALANCED.

Another of their strongest arguments is that the traffic can be done much cheaper by water than by rail, and on that account our water routes should secure a large share of the carrying trade.

They forget, however, that speed, safety, prompt delivery, and no insurance risks, will counterbalance to some extent the inducement of lower rates.

Notwithstanding all the supposed advantages offered by water routes, we see that railways on this continent are steadily increasing the tonnage on their roads, whilst canals are going behind.

The following table will shew the rates by water from Chicago to New York, and by rail and water to the same destination, also the rates from Chicago to Montreal by water, for years 1876-1879.

In 1876, the average lake and canal and rail freight on wheat and corn between Chicago and New York was—

	Average for the Season. c. m. f.	
From Chicago to Buffalo on wheat per bushel of 60 lbs	3 1 1	
From Buffalo to New York	6 7 2	
		9 8 3
Corn—Chicago to Buffalo	2 6 0	
" Buffalo to New York	6 0 9	
		8 6 9
Wheat—From Chicago to Buffalo by water	3 1 1	
" From Buffalo to New York by rail	6 7 1	
		9 8 2
Corn—From Chicago to Buffalo by water	2 6 0	
" From Buffalo to New York by rail	6 1 8	
		8 7 8

IN 1879.

Wheat—Chicago to Buffalo by water	4 7 2	
" Buffalo to New York by water	6 9 6	
		11 16 8

Corn—Chicago to Buffalo by water.....	4	2	8	
" Buffalo to New York by water.....	6	1	5	
				10 4 13
Wheat—Chicago to Buffalo by water.....	4	7	2	
" Buffalo to New York by rail.....	7	8	2	
				12 5 4
Corn—Chicago to Buffalo by water.....	4	2	8	
" Buffalo to New York by rail.....	7	3	2	
				11 6 0

The abolition of tolls on the Erie Canal is equivalent to 1 cent per bushel.

All rail from Chicago to New York would probably cost a little more.

The average rate of freight from Chicago to Montreal by water was 6½ to 11 cents. Main average 8½ cents.

It will be seen by the above statistics that the rates by all water and by water and rail are the same.

NO HOPE OF SECURING THE WESTERN TRAFFIC.

I am convinced in my own mind that we cannot count upon securing the western grain traffic, while the great markets for it continue to be Chicago and New York and while there are so much capital and so many facilities in American hands for handling it between the interior and the seaboard. According to my humble views, it is preposterous to think of competing successfully for this trade with our neighbors upon their own ground and with all the advantages of wealth, intelligence and an immense population on their side. Even granting that we were to do our best to draw it away from them, all they would have to do to check us would be to make such reductions in their transportation rates as would at once neutralize all our efforts. Indeed, with their extended system of railways and their numerous

harbors open in winter as well as in summer, it is obviously absurd for us to dream for a moment that our water routes, even when made free, will ever take away from them their own traffic.

We do a considerable amount of business with the United States and have a growing trade of our own, which requires to be looked after and fostered by every possible means. But, as for the western traffic, we have not got it, and what is more, we cannot secure it, except what we choose to do in that way on our own account.

I may be wrong; but I do not believe that American business men will ever think of using the St. Lawrence to any extent or of abandoning their own favorite routes for ours while they have all the facilities which they actually possess and which are a hundred fold more than any we can boast of. I can understand that, if it were possible for us to offer them superior advantages to their own, they would naturally be attracted to the St. Lawrence route. But are we really capable of running them down in their own field by lower rates? I doubt it. In fact, there is no ground whatever for the presumption. If we reduce our charges, there can be no question of their ability to follow our example. We should never forget that that is a kind of game two can play at and that our neighbors have a vantage-ground for the purpose which we by no means enjoy.

EVEN FREE CANALS CANNOT COMPETE WITH RAILWAYS.

Now, granted that we were to launch into all this expenditure for the improvement of our water routes, is there any likelihood of its ever returning us any equivalent? The precedent furnished by the Erie Canal certainly does not give much promise of such an eventuality.

We know that water conveyance is only used for articles of bulk and little value, and that railways carry all the valuable freight, passengers, &c. No one nowadays dreams of getting a case of goods by water where he can as conveniently get it by rail. Therefore, all we would carry by our water routes would be valueless as compared with the traffic by rail. To show that I am not far wrong, I will just cite in support the opinion expressed by a great railway king of the United States, to which I attach a great deal of importance, coinciding, as it does, with my own. Besides, one has only to open his eyes to perceive the general drift of business all the world over, railways monopolizing the bulk of the traffic and water-courses being relegated to local purposes and the carriage of articles of slight value.

Free Canals vs. Railways :—Jay Gould, in speaking of free canals, says :—" The effect of removing the tolls will " not be noticed particularly by railroads. The railroads " have a fabulous amount of passenger traffic, expressage, " and freightage that the canals are not able to do.

" These slow routes will get enough of bulky property " to transport at moderate rates to keep them in existence. " The actual rivalry is no longer between the railroads and " the canals, but among the various trunk lines running " between the ocean and the lakes. Things have been " warm in the past, but they will be red hot in future."

The correctness of Jay Gould's opinion as to the influence exercised by the great trunk lines on the carrying trade of the country can hardly be doubted.

The statistics which I have already given and the figures of which are taken from the Auditor's report on the State Canals, so that there can be no question as to their authenticity and correctness.

Moreover, the report of the State Engineer and Superintendent of the State Canals clearly establishes that, in the

State of New York, railways are doing the bulk of the carrying trade and that the traffic on the State canals is limited to bulky goods, which could not afford to pay a high rate of freight.

DESPATCH THE GREAT COMMERCIAL DESIDERATUM OF THE AGE.

The nature of business has greatly changed of late years, We see all over the world an effort and a successful one, too, to connect all countries together by lines of telegraph extending not only over land, but also from one continent to another by means of submarine cables. Lines of large and swift steamers are overcoming the distances and the dangers of ocean navigation. Railways are also keeping up with the age of progress by continually adding to their facilities for traffic. On this continent we are in constant communication with all the markets of Europe by several Atlantic cables; so that, in our own age, time is money, and we can no longer be satisfied with slow processes of locomotion. As soon as a market shows the least sign of depletion, immediately the cables flash the news all over the world.

This is especially the case with the trade in grain and other products. Our produce merchants are now in daily and even hourly communication with the European markets and sales are effected by cablegram, so that, wherever there is the slightest chance of doing business, the fact is almost immediately ascertained and the goods are at once forwarded to the seeking market. The idea of using a slow and tedious process of reaching the seaboard with them under the circumstances would never enter any one's mind, where prompt delivery is the very essence of successful trade. In fact, the selling prices of nearly all articles vary so often and sometimes even within the short space of a month that quick despatch is requisite in everything.

CANADIAN DISABILITIES.

Even our own merchants engaged in the grain trade are obliged to have recourse to the New York and Chicago markets, whenever they receive orders for grain cargoes, and to avail themselves of the most expeditious routes, when they wish to strike a favorable home market.

Our great drawback is, as already stated, our long winter and the necessity we are under of seeking an outlet on the Atlantic during that season through American territory unless the Government makes St. John or Halifax a winter terminus.

As for our North West, the seasons there are pretty much the same as ours and the ingathering of its grain harvests will consequently be always too late for fall shipment *via* the St. Lawrence route, so that it is altogether unlikely that shippers and forwarders will wait till the opening of navigation in the following spring to ship the grain of the previous year.

DECLINE OF THE MONTREAL GRAIN TRADE.

Now, a good deal has been said about the grain trade of Montreal, but it is a well known fact that that branch of the sister city's trade has not materially increased of late years or has our tonnage engaged in inland navigation much developed, for the very good reason that we have such powerful rivals to contend with in our neighbours and their facilities for doing the carrying trade, which are a hundred fold in excess of our own; and I am confirmed in my opinion on the subject by the evidence of Mr. Magor, the well known Montreal commission merchant, given before the Committee on inter-provincial trade last winter. I may state that Mr. Magor is opposed to the Canadian duty on grain and flour from the United States and is in-

clined to attribute the want of increase in the traffic in those products to that cause; but with that feature of the question it is not part of my programme to deal.

On page 6, he says: "It is notorious in Montreal that "the grain trade is the poorest paying trade that any man "can be engaged in. If you go back thirty years you will "find that the men engaged in it are hard-working, per- "severing men.

"*Q.*—Is it not the same every where else? *A.*—No; it is "a respectable trade every where else. Montreal is the last "place in the world that those engaged in the grain trade "would go to, to do business. The disadvantages are very "great, and we want them removed. The bonding system "is one of those disadvantages which we want removed. "*Q.*—Free trade? *A.*—Yes, in breadstuffs. *Q.*—Then, "Montreal is the worst place for the grain trade? *A.*—Yes. "*Q.*—And since the bonding system came in force it has "been worse! *A.*—Yes, to a very great extent. *Q.*—Has "there been a great falling off in the quantity of grain going "down the St. Lawrence? *A.*—Yes, our trade in grain is "decreasing."

From the above evidence it is clear that the grain trade from the west is not increasing. The witness attributes the decrease wholly to the duty upon grain and flour, but he is wrong as I have shown. Elsewhere there are other causes at work.

THE WANT OF A DEEPER CHANNEL BETWEEN MONTREAL AND QUEBEC NOT THE CAUSE.

In the whole of the evidence adduced before the Committee in question, not a word can be found about the necessity of an artificial ship channel being made at the public expense between Quebec and Montreal. I think I have said quite enough to show that it is not the mere fact of a few feet more or less of water east of Montreal that will affect the traffic from the west and, if there were a channel of 30 feet in existence, it would not have influenced in one

single iota the grain trade, as it is not at all on that account that our trade in cereals has not increased. It is owing to American competition over their own grouud.

Therefore it is perfectly puerile on the part of the Montreal Harbour Commission to bring forward such an argument. They either have not studied the question or else they want to ignore it.

How very simple the whole thing looks on the face of their memorial! They get their engineer to make an estimate of the probable cost of a channel 2½ feet deeper, and which they set down at $900,000, though they know very well that to make a suitable channel between Quebec and Montreal will cost millions. But their great object is to induce the Government to assume the responsibility of the works. They know fully, better in fact than any body else, that the actual width of the present channel will never be sufficient for the ocean traffic, as the Government would soon find out to its cost when it undertook the work, for, to make a deep and wide channel fit for the ocean traffic, millions would be required.

FALLACY OF MONTREAL'S ARGUMENTS.

To show how far the advocates of the waterways are incorrect, let us make a few comparisons, which may perhaps serve to indicate what little faith should be reposed in their conclusions as to the the utility of the canals for the purposes of a general traffic.

The length of the Erie Canal from Buffalo to Albany is about 352.18 miles.

The depth of water is on an average 7 feet.

The tolls levied upon it, before their total abolition, which did not apply to the last fiscal year, were a mere fraction upon its cost. The lift locks are 76 in number.

The class of boats employed on the Erie Canal have not the carrying capacity of the craft employed on our own canals. They can only carry 8,000 bushels.

The average time required to make the round trip between Buffalo and New York is 28 days.

The cost of collection and repairs absorbed about all the revenues.

The total length of our canals is :

The Welland Canal	27½	miles.
The average depth	12	feet.
The total length of the St. Lawrence canals is	45	miles.
In all	72	miles.

The average depth of the St. Lawrence canals is 9 feet.

The number of locks 53.

The tolls levied upon our canals are a mere fraction, and to keep pace with the reduction in tolls made upon the Erie Canal, ours were also reduced in 1881.

For twenty years the tonnage over the Erie Canal has remained stationary. In 1862 the total tonnage was 5,598,785, and in 1881, 5,179,192 tons. The value in 1862 was $203,234,331, in 1881 $162,153,565, showing a falling off both in tonnage and value for 1881.

The New York Central Railroad carried, in 1862, 1,387,433 tons, and in 1881	11,591,379 tons.
The Erie Railway carried in 1862, 1,832,955 tons, and in 1881	11,086,823 "
Total	22.678,202 tons.

The increase of the tonnage from 1862 to 1881 was about 700 per cent, and the increase in 1881 over the State canals

was upwards of 400 per cent, whilst in 1861 the State canals showed an excess of tonnage fully equal to 60 per cent over those lines of railway.

Do not these figures demonstrate clearly the soundness of my opinion as to the important and growing part played by railways in the carrying traffic?

The amount of grain annually shipped from the port of Montreal is a mere drop in the bucket as compared to the quantity shipped from American ports.

THE REAL FACTS OF THE CASE.

These circumstances prove clearly that it is not owing to any inferiority of our water route to the Erie Canal that our traffic upon it has not increased, as our canals had more water in them than the Erie Canal and we had only 72 miles to their 384 of canal navigation. Our tolls, too, were a mere fraction. So that if we have failed to attract more of the western traffic, it cannot be said to be due to the inferiority of our water route.

They establish on the contrary that water routes both here and in the United States are not used as much as railways. They also show that the American railways are doing the carrying trade of the country and that the western trade, about which so much is said, is in the hands of our neighbours and that we are not competing successfully with them for it.

Do these figures not sufficiently prove the fallacy of Montreal's pretensions that it will lose the western trade, if we do not build a ship channel between Quebec Montreal?

Is it not manifest also that the Government should deliberate long and seriously before engaging in any scheme of

improvement of our water routes and should first consider thoroughly not only its necessity for the development of our western traffic, but the strong possibility that the money spent upon it would be uselessly thrown away.

I am sure the Government before adopting the course suggested by Montreal will go into the question seriously and weigh well whether the mere fact of a couple of feet more or less of water in the channel between Quebec and Montreal is really an impediment to the western traffic. I am quite certain the Montreal Harbor Commission are not serious when they come before the Government with the plea that unless a further depth be given to the channel, the traffic will leave the St. Lawrence. I feel convinced also that in making this statement they have allowed themselves to be carried away by motives of local interest, as I believe any one who will give the matter a little serious reflection cannot fail to be immediately struck with the strangeness of the idea that to obtain a western traffic improvements ought to be made from the east, especially when the depth of water in that quarter is greater than above.

Attention has been already called to the dangers of the policy of undertaking to deepen the channel between Quebec and Montreal at the public expense on account of the multitude of claims of a similar kind to which it would give rise and which could not very well be refused, considering that every locality in the Dominion has as much right as another to the protection of the Government.

For instance, if the St. Lawrence canals underwent improvement by further deepening to fourteen feet all over, the Ottawa district would naturally demand a like improvement to its canals. In fact, it is out of the question to imagine that one city can be given an undue advantage over another under any pretext more or less plausible.

MONTREAL'S REAL OBJECT.

Now, who is it really wants an artificial channel to Montreal, but Montreal itself, which seeks to build up a business for itself at the expense of the public, under the pretext that the channel will increase the western traffic through the Dominion? To be plain, the Montrealers want to deprive the Port of Quebec of a trade that legitimately belongs to it and to wheedle the country at large into paying for the bringing of all the ocean and inland navigation to their doors.

For years, there has been such an outcry about the western traffic that it might seem to the uninitiated as if that traffic were within our grasp and belonged to our own people, whereas, in reality, it is a traffic on American territory, where every facility to handle it is vastly superior to anything we can offer in the same or any other line.

The fact is that, for a long time past, the grain trade has not materially increased and those engaged in it have not found it profitable owing to the powerful competition in the United States between the rival trunk lines of railway. Hence, the clamor for the improvement of our water routes and the abolition of all kinds of charges, under the impression that these things have only to be done to render an unsatisfactory business a satisfactory one and that Government, by undertaking all sorts of improvements at the public expense, will benefit our grain merchants and enable them to enter successfully into competition with the gigantic and overshadowing markets of Chicago and New York.

But, granting the correctness of their pretensions, are they sure that the abolition of our canal tolls would increase the volume of the western grain trade?

It has already been shown that it is not the charges on our water routes or the want of water in our canals that

has prevented the grain trade from seeking an outlet to a greater extent by our water-courses ; and, even were the channel between Quebec and Montreal to be deepened at Government expense and all our waterways made absolutely free, I do not believe that with all these advantages we would succeed in attracting a greater share of the American trade to the St. Lawrence.

The western interests in railways and lake navigation are too great to think that they would quietly look on and allow us to do their carrying business. The thing appears to me simply absurd, and our forwarders and shippers know it well ; but their business is not as profitable as it should be and they would like to be helped at the public expense.

If the Government once goes into this channel scheme, it will be some time before it gets out of it, and by the time the channel is completed, many millions will have been sunk in the undertaking, for it is evident that a channel of 27½ feet will not satisfy the Montreal Harbor Commission especially when the Government undertakes to pay for it. They would soon persuade the Government that it requires, for the exigencies of trade, not a channel of 27½ feet, but a much deeper one, and that a channel of a width of 300 feet is not safe even for the actual traffic. Indeed, we have at present frequent enough occurrences in the way of steamers now and then taking the ground to show that the navigation between Quebec and Montreal is not safe at this moment unless great caution and care are exercised.

Consequently, if the Government goes into this undertaking, it may expect to have to make a channel costing several millions.

What are really the pretensions of the Harbor Commission of Montreal ?

They want the Government to reimburse them the amount already expended in deepening the channel between Quebec and Montreal and to undertake to carry out all the improvements that may be required hereafter to allow of the largest vessels passing right through to Montreal. They next advocate that their port should be made free. All this would have to be done at the public expense, and, as no charge of any kind would be made for maintenance and repairs, the expenditure for these purposes would, of course, become a perpetual charge upon the public purse, and all under the pretence that Montreal is the head of inland navigation and that it is the pivot upon which should turn all the commercial interests of the entire Dominion.

NO BENEFIT TO THE COUNTRY AT LARGE.

Up to this time who has really benefitted by all the improvements that have been made, if it be not the City of Montreal?

It makes very little difference to the general interest of the Dominion whether Montreal is the head of navigation or not, and it is not necessary in the interests of commerce and navigation that the Government should expend millions to make Montreal the great port of the Dominion at the expense of other ports, when before long all those ports such as Quebec, Halifax and St. John's will be quite ready to do their share of the business of the country. I consequently consider that, if the Government were to take Montreal under its protecting wing, it would commit one of the grossest acts of injustice, as it would actually be protecting one city against another.

I see that the Montreal press express their disappointment at not having obtained during last session what they were asking, and want to make the public believe that the trade will seek United States channels unless the channel be deepened and all kinds of charges on our canals removed.

I have already shown that our tolls are insignificant and that up to last season they were not of sufficient importance to drive away the trade to another channel, our charges being, perhaps, no more than on the Erie Canal.

I have also shown that it was not through want of water that we did not compete successfully by our water routes with the Erie Canal, as our canals are only some 72 miles in length against the Erie's 384 miles. The depth of water in our canals, too, is 9 feet at the lowest, whereas the Erie Canal has only 7 feet. Then we have less lockage. Therefore our water-courses offered more advantages than that rival route ; still neither the Canadian nor the American water routes are doing the carrying trade.

Barges carrying some 20,000 bushels of grain pass from Kingston to Montreal, which is a great deal more than can be done on the Erie Canal. Therefore, if our grain trade has not materially increased, it is not due to want of water in our canals and in the channel between Montreal and Quebec, but is owing entirely to other causes which I have already explained. Besides, is it not presumption on our part when we see some of our public press loudly proclaiming that the western traffic will take the United States route instead of our own? They seem to forget that all this western traffic, of which they speak so confidently, belongs naturally to our neighbours, as it is created in their own fields and within their own territory. Those who speak or write in that way are either ignorant of the subject or else if they know better they are not placing the question in its true light. They should tell the people that all this western traffic is not our own, but that by making our water routes cheap they expect to be able to kill out all the interests involved in the vast system of American railway communication, and all their lake interests, (for we must not forget that our neighbours have large propellers navigating all the lakes west of Montreal; that all these vessels navigate lakes

Michigan, Huron, Erie and Ontario ; and that all those lakes are surrounded on the American side by railway lines communicating with the different sea boards.) Therefore, when our Montreal friends cry out so piteously that the western traffic will take another channel if we do not hasten to make certain improvements, they either, as already remarked, write about what they ignore or else they are so blindly wedded to their own local interests that they have come to forget that this western trade follows its natural channel, which is that of its own origin. In fact, for us to talk of taking away or diverting a large portion of the American grain trade is out of the question, and those engaged in the business know this truth thoroughly well.

LIMITED USEFULNESS OF CANALS.

Our water routes will be always useful for common goods, such as lumber, coals, hay, grain, &c., all of which, being of a bulky volume, require to be transported at a low rate of freight.

It must not be inferred from what I have said and written on the subject of our canal system that I am in favor of its being entirely abandoned and allowed to fall into disuse, as I believe it can be largely utilized for a local traffic and for a limited through trade.

On the contrary, I think our canals should be maintained and even improved, so as to give them a more uniform depth of water, if found necessary.

What I really mean is that our water routes will not, in any case, divert the large transcontinental traffic now in the hands of our neighbours, and that it would be injudicious in the face of railway competition to go to an immense expense on those water routes, under the impression that we can successfully compete with the United States on their own ground and divert *via* the St. Lawrence a traffic

which they are more competent than ourselves to do—especially when we see the immense progress railways are making and the influence they exercise on the carrying trade.

But in the face of what is taking place on the Erie Canal and the unanimous admission of men of the largest experience, according to the evidence adduced before Mr. Paint's committee on inter-provincial trade, that no lines of steamers can vie with railways unless supported by Government subsidies—to think that by deepening them we will succeed in taking out of American hands any large portion of their own traffic, which they are more competent to handle than ourselves, is a simple absurdity.

No doubt, an improvement of our water-courses would always give additional facilities to our own traffic and to our exchanges with our neighbours, but the question is would the advantages to be derived constitute an equivalent for the enormous expenditure into which we would have to launch for the purpose and which is more than the country can afford at present and for a good while to come?

In view of the important traffic changes which railways are already effecting and their future probabilities in the same direction, would it be wise on the part of the Government to undertake such an expenditure, when the chances are that, before the end of the twenty years computed to be necessary to complete the desired improvements, quite a revolution may have taken place in the carrying trade which would render all the vast expenditure for the purpose perfectly useless? In reality, the pretension that we will lose our trade if we do not improve our water routes has no *raison d'être*, as the traffic contemplated is not our own and can only be attracted to Canadian channels by a train of circumstances which we can never hope to bring about.

It has already been said that if the Government were to exclusively take Montreal under its fostering wing, it would

commit a gross act of injustice towards other localities. For instance, Quebec, with four lines of railways converging to its port which is admittedly one of the finest in the world, capable at all times of holding an unlimited number of vessels and as accessible as Montreal by water from the west, has a legitimate right to a fair field and no favor in competing for the western trade and will soon be in a position to do its share of it, without asking the Government to give it undue or exceptional advantages for the purpose; while Montreal wants the country to build an artificial channel for it and to otherwise favor a port, which at best will never be able to offer more than a limited amount of accommodation.

SUPERIOR ADVANTAGES OF THE PORT OF QUEBEC.

The port of Quebec is now going on with certain harbor works which, on completion, will afford all the facilities required for the handling of an extensive and important grain traffic; moreover, steamers coming to its new harbor works will be saved all the delays, expenses and charges of a navigation of 180 miles in a narrow, tortuous channel, and, instead of being detained here fourteen days as they now are by proceeding to Montreal, they will be able to sail a week sooner, which would enable each of them to make one trip more each season.

The works in question will be completed in another year from this as far as the Louise Embankment is concerned; but the cross wall dividing the tidal basin from the wet dock will be only finished in three years from date, which is very much sooner than all the contemplated improvements on our water-courses could be effected.

I feel sure that when these works will have been completed, the advantages they will offer to the ocean trade will be such that no amount of digging between Montreal and Quebec will succeed in casting them into the shade.

Under such circumstances, would it not be an act of prudence on the part of the Government to put off committing itself to such an expensive policy as the never-ending undertaking of making and keeping up a deep ship channel to reach Montreal?

We must not overlook the fact that Montreal was in communication long before Quebec with the American system of railways. But this is no longer the case, as we have now access by rail east and west of Quebec, and produce can reach us both by rail and water just as easily as Montreal and at no more expense; for it must be as cheap to run down river craft from Montreal to Quebec and back than to send up a big ocean steamer with all its attendant expenses and risks.

ABSURDITY OF MONTREAL'S DEMAND—DUTY OF THE HOUR.

It seems perfectly ridiculous for the Harbor Commission of Montreal to ask the Government to build at the public expense an artificial port and channel at an expenditure of several millions, when, if the Government is seriously bent in attracting traffic to the Canadian route, a very small sum expended on our port would afford all the facilities for traffic both east and west, that is likely ever to seek the Atlantic in summer by the St. Lawrence. If the Government really means to give additional facilities for the western traffic by our water route, let it in that case improve all our water courses from west to east and make Quebec the terminal point of inland navigation.

It would then be considered that the Government was performing a work of general interest to a large part of the Dominion, especially to that portion lying on a line with those water routes.

The St. Lawrence could be used as the route to the Atlantic in summer and by means of a bridge at Quebec, the

most eastern point at which it is possible to span the river St. Lawrence, Halifax, St. John and St. Andrew's would become winter ports of the Dominion.

If that were the avowed policy of the Government, no one would object to the scheme, as it would contemplate the working out of a general plan beneficial to the whole Dominion and not as proposed at present in the interest of a single locality to the detriment of several others equally entitled to protective treatment at the hands of our Federal authorities.

The only drawback to this scheme would be the cost, but even this would be preferable to a partial and piecemeal performance of the works, causing in the meantime serious injuries to others.

MONTREAL SHOULD PAY FOR ITS OWN IMPROVEMENTS.

It does not matter under what aspect I examine the pretensions of the Montreal Harbor Commission, I really fail to find that this channel improvement is to be for the benefit of the whole Dominion. If the Montrealers must have an expensive artificial channel and basin, let them pay for it. If they want to be the head of navigation, let them share in the cost as well as in the profits. We must not forget that it is not Montreal directly that pays for these improvements, but the whole trade passing through the water route, by a tax imposed upon shipping—that city receiving all the benefits and paying nothing as it is.

The Government, in making a free port of Montreal, should impose upon the city a tax sufficient to cover the outlay, as the latter would derive more advantage from the channel than any place else.

To sum up all I have said on this important subject, I think I have shewn clearly enough what railways have accomplished in the carrying trade not only on this continent, but in Europe as well; that they are the great factors of the inland trade and commerce of all countries wherever established; that water routes cannot compete with them unless the vessels engaged on them are protected by Government subsidies; and that this conclusion was deliberately and unanimously arrived at by the men of experience, who gave their evidence before the Committee on inter-provincial trade at Ottawa last session.

In the second place, I believe I have clearly demonstrated that, in yielding to the demands of the Montreal Harbor Commission, the Government would be adopting a dangerous policy entailing an enormous expenditure for an object of doubtful results—there being no certainty that it would realize our aspirations and the State of New York offering us a striking example of the failure of canals to meet the expectations formed with regard to them.

I fancy also that I have pointed out distinctly enough that, if the Government really means to give all our watercourses a proper depth, the work should be executed on some well defined plan bearing the semblance of a public undertaking and carried out as all enterprises of the kind should be; but that, before adopting any plan whatever, the cost and the advantage likely to be really derived from it should be thoroughly well considered to ascertain in how far the benefits promise to be an equivalent for the sacrifices made to obtain them.

I think I have further succeeded in showing how futile are the pretensions of those who proclaim that we will lose a western traffic which is really not our own, unless we further deepen the channel between Quebec and Montreal, and this, too, in face of the fact that they have already

failed to secure an increase in that traffic not through any want of a sufficiency of water in our waterways, but through causes which are beyond our control.

I feel so convinced of the unquestionable correctness of my views that I am confident the Government will not go into any general and well-defined system of improvement. It, no doubt, comprehends too well the vast responsibility of the task and the innumerable difficulties that surround it. But, if the Government should ever consent to assume the debt incurred for the deepening of the channel, it will be more to meet the views of Montreal than anything else, as I am certain that Ministers know as well as any one that the policy which the advocates of Montreal's pretensions are seeking to force upon them is not in the public interest, generally speaking.

CONCLUSION.

I must now draw my remarks to a close, as I am afraid I have already trespassed too long on your kind attention and taken up, perhaps, too much of your valuable time. But I have no doubt that you will consider that, if on the one hand I have probably put your patience to the test, you will not forget on the other that the motives which are actuating me in this instance are entirely disinterested as far as I am concerned, my only object in making a study of such an important question as that of our routes to the seaboard being to place the subject before the members of this Board in its true light and to lay before the general public such facts as will enable them to judge for themselves as to the admissibility of Montreal's pretensions.

To terminate, let me say that I have seen nothing yet which more aptly or effectually compresses into a nutshell the whole case between railways and water-courses as competitors for inland traffic than a recent remark of Mr. La-

bouchere in London *Truth*. Referring to the time and pains taken in the public schools to teach pupils the courses of rivers and streams, Mr. Labouchere, with characteristic triteness, expresses his surprise that equal pains are not taken to teach the rising generation the great railway routes, which nowadays far exceed in importance the inland water communications of most countries. To my mind, this pointed criticism of the observant and outspoken editor of *Truth* not only merits the serious attention of the educational directors of the age, but is eminently far-seeing in its manifest appreciation of the paramount part which railways are destined to play in the near future as the great channels of inland traffic all over the civilized world.

[Upon its conclusion, an unanimous vote of thanks, duly proposed and seconded, was passed by the Board to Mr. Shehyn for his very able and instructive paper, in addition to the resolution ordering it to be printed.]

Since the foregoing was written, the State Engineer and Surveyor of the New York State canals has issued his annual report for the fiscal year ended on the 30th September, 1883. A concise summary of this report, just telegraphed to the Canadian Press, is subjoined and its careful perusal is recommended. It will be found not only to fully bear out the views expressed in the above paper respecting the declining usefulness and popularity of canals as channels of transport in competition with railways, but to even go further in strengthening the position taken by the writer on the subject, boldly proclaiming that they have outlived their mission, that the *experiment of endeavoring to increase the traffic upon the New York State canals by the abolition of the tolls*

has proved an entire failure, and that the best thing the State authorities can now do is to get rid of such costly and useless public burthens in some way or other as soon as possible. Indeed, the sum of the whole report is that the canals are doomed and "must go," and, under the circumstances, the State is advised with regard to them to follow the example of Pennsylvania, Ohio and other States, which appear to have already proved their uselessness and to have succeeded in disposing of their canals, while there was yet a vestige of faith remaining in credulous minds as to their utility. It may be remarked, however, that the New York State Engineer is rather over sanguine and displays not a little inconsistency in the opinion he expresses as to the probability that the State canals can be readily sold for an amount sufficient to liquidate the entire canal debt of the State. It is not at all likely, upon his own unfavorable showing of the business now done by the canals and their discouraging outlook for the future, that any purchaser for them upon such satisfactory terms could be found. But, under every aspect, the melancholy experience of our American neighbors in the connection points a moral for Canadians and their Government, which—it is much to be hoped —will not be thrown away upon them at this juncture:—

"CANALS MUST GO."

"ALBANY, N. Y., Jan. 4.—In his annual report just submitted to the Legislature, the State Engineer and Surveyor shows that the total length of all the canals, river improvements, navigable feeders, slips and basins is 644.22 miles. There are about 4,000 boats now engaged in transportation upon the State canals, 92 of which are propelled by steam and the balance by animal power. The average time required to make a round trip between Buffalo and New York city is 28 days. The condition of the canals, instead of improving since last year, has deteriorated. This leads the Engineer to conclude that the experiment of endeavoring to materially increase the tonnage of the canals by the abolition of tolls has thus far proved to be an entire failure.

It would, therefore, seem to be a wise policy for the people of the State, at the earliest day practicable, to so further amend the Constitution as to enable the Legislature at its discretion either to reimpose tolls to a sufficient extent to keep the canals in repair or to lease them upon the best terms attainable to responsible parties who will agree to operate and keep them in repair, or to sell them outright, together with all the State property connected with them, to the highest bidder. The last named alternative would, in the light of past experience, appear to be the wisest of the three, for the reason that Pennsylvania, Ohio and other States have found it for their interest to dispose of their canals and thus reimburse their treasuries to some extent for the capital invested in them; and there can be no doubt that the canals of this State can readily be sold for a sufficient amount to liquidate the entire canal debt of the State and thus relieve the people from the burden of any further taxation on that account. Canals, as a successful and necessary means of transport, have outlived their usefulness; and as between railways and canals, when considered with reference to their relative merits as affording a means for rapid and economical transport, it must be regarded as a foregone and inevitable conclusion that the canals must go. The estimated cost of putting the canals in thorough repair is $3,852,687."

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APPENDIX A.

INLAND COMMUNICATIONS—UNITED KINGDOM.

The following comparative statement of the receipts from passenger and goods trains, extracted from the official report of Captain Tyler to the Railway Department of the British Board of Trade, will give an idea of the enormous increase of railway traffic in the British Isles and of the extent to which railways had already begun to monopolize the inland carrying trade of the United Kingdom as far back as the period comprised between the years 1858 and 1873 : *

COMPARISON OF RECEIPTS

From Goods Trains and Proportion of Receipts from Passenger and Goods Trains.

		Receipts from Goods, &c. Trains.				Total by Passenger Trains. £	Total from Passenger and Goods, &c. Trains. £
		Minerals. £	General Merchandize £	Live Stock. £	Total Goods, &c. Trains. £		
United Kingdom	1858	4,046,061	7,711,386	501,398	12,258,845	11,697,904	23,956,749
	1870	9,392,513	13,810,196	912,450	24,115,159	19,301,911	43,417,070
	1871	10,029,253	15,418,171	1,037,554	26,484,978	20,622,580	47,107,558
	1872	11,226,157	16,687,830	1,077,867	29,016,559	22,287,555	51,304,114
	1873	12,605,462	18,047,756	1,144,760	31,821,529	23,853,892	55,675,421

* From 1873 to date, the rate of increase has been still greater, as it is chiefly within the last ten years that railways seem to have extended out more fully. I have not been able to procure reliable returns of the British canals or the official statistics as regards the coasting trade. But I have good reason to believe that both those interests have remained stationary. Indeed, I understand that the coasting trade shows a falling off, since the introduction of railways.

APPENDIX B.

Inland Communications—United States.

The following statement, taken from the annual report of the Auditor of the Canal Department of the State of New York, for the year 1881, and showing the number of tons of each class of property carried respectively on the State Canals during the season of navigation in that year, and on the Erie and Central railroads from the 1st October, 1880, to the 30th September, 1881, forcibly illustrates the development of the American railway system and the extent to which it is superseding the canals for purposes of inland carriage :—

Description of Property.	Tons of each class carried on the canals.	Tons of each class carried on the railroads.	Total tons of each class carried on the canals and railroads.
Products of the forest	1,652,543	1,185,626	2,838,169
Products of animals	3,621	1,391,645	1,395,266
Vegetable food	1,116,561	4,983,722	6,100,283
Other agricultural products.	51,218	930,829	982,047
Manufactures	250,961	2,057,726	2,308,687
Merchandize	325,775	2,329,179	2,654,954
Other articles	1,778,513	9,799,475	11,577,988
Total tons carried.....	5,179,192	22,678,202	27,857,394

APPENDIX C.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

The following table is given by the Auditor of the Canal Department of the State of New York, in his report for 1881, to show the separate tonnages of the State Canals and the two competing railways (the Central and Erie roads) and the aggregate of both for twenty-nine years, from 1853 to 1881, inclusive, with the losses and gains of each, compared with the previous year. Particular attention is called to the important exhibits of this table, demonstrating as they do the steady decline of the canal traffic from year to year when brought into competition with the constantly increasing facilities and popularity of railways as inland carriers:—

CANALS AND RAILROADS.	1853	1854	Gain in 1854.	Loss in 1854.
New York canals, tons.....	4,247,853	4,165,862	.....	81,991
New York Central railroad, tons.....	360,000	549,804	189,804	.....
New York and Erie railroad, tons.....	631,039	743,250	112,211	.....
	5,238,892	5,458,916	302,015	81,991
	1854	1855	Gain in 1855.	Loss in 1855.
New York canals, tons.....	4,165,862	4,022,617	.....	143,245
New York Central railroad, tons.....	549,804	670,073	120,269	.....
New York and Erie railroad, tons.....	743,250	842,048	19,798	.....
	5,458,916	5,534,738	219,067	143,245
	1855	1856	Gain in 1856.	Loss in 1856.
New York canals, tons.....	4,022,617	4,116,084	93,465	.....
New York Central railroad, tons.....	670,073	776,112	106,039	.....
New York and Erie railroad, tons.....	842,046	943,215	101,167	.....
	5,534,738	5,835,409	300,671	.....

Canals and Railroads.	1856	1857	Gain in 1857.	Loss in 1857.
New York canals, tons.	4,116,082	3,344,061	.....	772,021
New York Central railroad, tons.....	776,112	838,791	62,679	.....
New York and Erie railroad, tons.....	943,215	978,066	34,851	.....
	5,835,409	5,160,918	97,530	772,021
	1857	1858	Gain in 1858.	Loss in 1858.
New York canals, tons.....	3,344,061	3,665,192	321,131	.....
New York Central railroad, tons.....	838,791	765,407	.....	73,284
New York and Erie railroad, tons.....	978,066	816,054	.....	161,112
	5,160,918	5,247,553	321,131	234,496
	1858	1859	Gain in 1859.	Loss in 1859.
New York canals, tons.....	3,665,192	3,781,684	116,492	.....
New York Central railroad, tons.....	765,407	834,319	68,912	.....
New York and Erie railroad, tons.....	816,954	869,073	53,119	.....
	5,247,553	5,485,076	238,523	.....
	1859	1860	Gain in 1860.	Loss in 1860.
New York canals, tons	3,781,684	4,650,214	868,530	.....
New York Central railroad, tons.....	834,319	1,028,183	193,864	.....
New York and Erie railroad, tons.....	868,073	1,139,554	270,481	.....
	5,485,076	6,817,951	1,332,875	.....
	1860	1861	Gain in 1861.	Loss in 1861.
New York canals, tons.....	4,050,214	4,507,635	.....	142,579
New York Central railroad, tons.....	1,028,183	1,167,302	139,119	.....
New York and Erie railroad, tons.....	1,139,554	1,253,418	113,864	.....
	6,817,951	6,928,355	262,983	142,579
	1861	1862	Gain in 1862.	Loss in 1862.
New York canals, tons.....	4,507,635	5,598,785	1,091,150	.....
New York Central railroad, tons.....	1,167,302	1,387,433	220,131	.....
Erie railway, tons	1,253,418	1,632,955	379,537	.....
	6,928,355	8,619,173	1,690,818	.....

Canals and Railroads.	1862	1863	Gain in 1863.	Loss in 1863.
New York canals, tons.....	5,598,785	5,557,692	.....	41,093
New York Central railroad, tons.....	1,387,433	1,449,604	62,171	.....
Erie Railway, tons.....	1,632,955	1,815,096	182,141	.....
	8,619,173	8,822,392	244,312	41,093
	1863	1864	Gain in 1864.	Loss in 1864.
New York canals, tons.....	5,557,692	4,852,941	.....	704,751
New York Central railroad, tons.....	1,449,604	1,557,148	107,544	.....
Erie railway, tons.....	1,815,096	2,170,798	355,702	.....
	8,822,392	8,580,887	463,246	704,751
	1864	1865	Gain in 1865.	Loss in 1865.
New York canals, tons.....	4,852,941	4,729,654	.....	123,287
New York Central railroad, tons.....	1,557,148	1,275,299	.....	281,849
Erie railway, tons.....	2,170,798	2,234,350	63,552	.....
	8,580,887	8,239,303	63,552	405,136
	1865	1866	Gain in 1866.	Loss in 1866.
New York canals, tons	4,729,654	5,775,220	1,045,566	.....
New York Central railroad, tons	1,275,299	1,602,197	326,898	.....
Erie railway, tons.....	2,234,350	3,242,792	1,008,442	.....
	8,239,303	10,620,209	2,380,906	.....
	1866	1867	Gain in 1867.	Loss in 1867.
New York canals, tons.....	5,775,220	5,688,325	.....	86,895
New York Central railroad, tons.....	1,602,197	1,667,926	65,729	.....
Erie railway, tons	3,242,792	3,484,546	241,754	.....
	10,620,209	10,840,797	307,483	86,895
	1867	1868	Gain in 1868.	Loss in 1868.
New York canals, tons.....	5,688,325	6,442,225	753,900	.....
New York Central railroad, tons.....	1,667,926	1,846,599	178,673	.....
Erie railway, tons.....	3,484,546	3,908,243	423,667	.....
	10,840,797	12,197,067	1,356,270	.....
	1868	1869	Gain in 1869.	Loss in 1869.
New York canals, tons.....	6,442,225	5,859,080	.....	583,145
New York Central railroad, tons.....	1,846,599	2,281,885	435,286	.....
Erie railway, tons.....	3,908,243	4,312,209	403,966	.....
	12,197,067	12,453,174	839,252	583,145

Canals and Railroads.	1869	1870	Gain in 1870.	Loss in 1870.
New York canals, tons.....	5,859,080	6,173,769	314,689	.....
New York Central railroad, tons.....	2,281,885	4,122,000	1,840,115	.....
Erie railway, tons.....	4,312,209	4,852,505	540,296	.....
	12,453,174	15,148,274	2,695,100	.....
	1870	1871	Gain in 1871.	Loss in 1871.
New York canals, tons.....	6,173,769	6,467,888	294,119	.....
New York Central railroad, tons.....	4,122,000	4,532,056	410,056	.....
Erie railway, tons.....	4,852,505	4,844,208	.....	8,297
	15,148,274	15,844,152	704,175	8,297
	1871	1872	Gain in 1872.	Loss in 1872.
New York canals, tons.....	6,467,888	6,673,370	205,482	....
New York Central railroad, tons.....	4,532,056	4,393,965	.....	138,091
Erie railway, tons.....	4,844,208	5,564,274	720,066	....
	15,844,152	16,631,609	925,548	138,091
	1872	1873	Gain in 1873.	Loss in 1873.
New York canals, tons.....	6,673,370	6,364,782	.....	308,588
New York Central railroad, tons.....	4,393,965	5,522,724	1,128,759	.....
Erie railway, tons	5,564,274	6,312,702	748,430	.....
	16,631,609	18,200,208	1,877,189	308,588
	1873	1874	Gain in 1874.	Loss in 1874.
New York canals, tons.....	6,364,782	5,804,588	.....	560,194
New York Central railroad, tons.....	5,522,724	6,114,678	591,954	.....
Erie railway, tons.....	6,312,702	6,364,276	51,574	.....
	18,200,208	18,283,542	643,528	560,194
	1874	1875	Gain in 1875.	Loss in 1875.
New York canals, tons.....	5,804,588	4,859,858	.....	944,730
New York Central railroad, tons.....	6,114,678	6,001,954	.....	112,724
Erie railway, tons.....	6,364,276	6,239,946	.....	124,330
	18,283,542	17,101,758	.....	1,181,784
	1875	1876	Gain in 1876.	Loss in 1876.
New York canals, tons.....	4,859,858	4,172,129	.....	687,729
New York Central railroad, tons.....	6,001,954	6,803,680	801,726	.....
Erie railway, tons.....	6,239,946	5,972,818	.....	267,128
	17,101,758	16,948,627	801,726	954,857

Canals and Railroads.	1876	1877	Gain in 1877.	Loss in 1877.
New York canals, tons.....	4,172,129	4,955,963	783,834	.....
New York Central railroad, tons.....	6,803,680	6,351,356	.....	452,324
Erie railway, tons.....	5,972,818	6,182,451	209,633	.....
	16,948,627	17,489,770	993,467	452,324
	1877	1878	Gain in 1878.	Loss in 1878.
New York canals, tons.....	4,955,963	5,171,320	215,357	.....
New York Central railroad, tons.....	6,351,356	7,695,413	1,344,057	.....
Erie railway, tons	6,182,451	6,150,568	.....	31,883
	17,489,770	19,017,301	1,559,414	31,883
	1878	1879	Gain in 1879.	Loss in 1879.
New York canals, tons.....	5,171,320	5,362,372	191,052	.....
New York Central railroad, tons.....	7,695,413	9,015,753	1,320,340	.....
Erie railway, tons.....	6,150,568	8,212,641	2,062,073	.....
	19,017,301	22,590,766	3,573,465	.....
	1879	1880	Gain in 1880.	Loss in 1880.
New York canals, tons.....	5,362,372	6,457,656	1,095,284	.....
New York Central railroad, tons.....	9,015,753	10,533,038	1,517,285	.....
Erie railway, tons.....	8,212,641	8,715,892	503,251	.....
	22,590,766	25,706,586	3,115,820	.....
	1880	1881	Gain in 1881.	Loss in 1881.
New York canals, tons.....	6,457,656	5,179,192	.....	1,278,464
New York Central railroad, tons	10,533,038	11,591,379	1,058,341	.....
Erie railway, tons	8,715,892	11,086,823	2,370,931	.....
	25,706,586	27,857,394	3,429,272	1,278,464

APPENDIX D.

INLAND COMMUNICATIONS.—UNITED STATES.—(*Continued.*)

In his report for 1881, the Auditor of the New York Canal Department introduces the following suggestive tables to show the extraordinary growth of the railway competition in the several classes of goods carried. They give the tons of each class of freight and the aggregate tonnage of all classes transported on the New York Central and the Erie railroads respectively for each year, commencing with 1856.

NEW YORK CENTRAL RAILWAY.

YEAR.	Products of the forest.	Products of animals.	Vegetable food.	All other agricultural products.	Manufactures.	Merchandize.	Other articles.	Aggregate tonnage.
1856	29,547	161,807	283,027	20,068	72,732	127,231	81,700	776,112
1857	31,468	180,852	275,941	18,989	75,731	177,708	78,102	838,791
1858	24,368	172,076	301,307	18,373	47,039	134,482	66,662	765,407
1859	35,154	204,167	249,751	30,096	57,038	178,782	79,333	834,319
1860	42,305	223,362	343,872	39,169	77,256	201,587	100,632	1,028,183
1861	39,310	251,964	441,562	47,341	80,597	192,583	113,945	1,167,302
1862	39,479	359,020	469,885	45,245	92,123	243,105	138,576	1,387,433
1863	52,829	395,876	405,380	72,467	88,965	310,275	123,812	1,449,604
1864	87,584	383,000	461,511	57,150	112,267	287,804	167,832	1,557,148
1865	55,718	348,661	349,103	32,099	71,484	258,043	160,191	1,275,299
1866	77,443	366,516	453,663	31,620	94,426	342,767	235,762	1,602,197
1867	97,035	358,143	495,194	43,544	111,291	323,359	239,360	1,667,926
1868	100,067	358,592	568,680	40,915	135,211	252,351	390,783	1,846,599
1869	122,436	405,617	764,831	48,523	161,639	291,787	487,052	2,281,885
1870	224,169	622,744	1,297,481	86,178	381,032	623,643	886,733	4,122,000
1871	274,685	708,904	1,459,919	117,627	339,603	626,245	955,073	4,532,056
1872	317,727	785,879	1,153,894	249,062	439,720	474,272	918,411	4,393,965
1873	425,115	962,767	1,452,962	172,506	493,035	565,495	1,449,944	5,522,724
1874	458,527	973,653	1,678,476	219,815	626,632	538,080	1,619,495	6,114,678
1875	383,708	832,935	1,669,070	242,750	673,274	560,176	1,840,041	6,001,954
1876	408,564	827,278	3,100,339	317,710	767,190	546,047	1,836,552	6,803,680
1877	414,969	855,439	1,787,112	386,146	750,389	575,301	1,581,000	6,351,356
1878	415,565	1,024,071	2,628,190	597,388	812,882	542,566	1,674,751	7,695,413
1879	429,261	1,041,296	3,007,813	508,669	1,078,405	656,774	2,233,535	9,015,753
1880	570,410	584,197	3,261,402	491,526	1,556 367	671,630	3,397,506	10,533,038
1881	679,643	853,050	3,183,319	564,471	1,472,581	1,800,630	3,037,685	11,391,379

Erie Railway.

YEAR.	Products of the forest.	Products of animals.	Vegetable food.	Other agricultural products.	Manufactures.	Merchandize.	Other articles.	Aggregate tonnage.
1856	116,378	170,099	148,943	13,556	110,769	155,473	218,003	993,221
1857	126,093	145,957	120,617	13,909	143,338	143,716	284,436	978,066
1858	92,550	178,076	154,534	10,885	88,976	128,709	163,235	816,965
1859	97,754	170,322	112,727	15,107	94,266	179,050	199,846	869,072
1860	118,890	201,823	197,233	19,909	113,948	198,610	289,141	1,139,554
1861	108,685	209,757	243,959	26,920	145,672	167,245	351,181	1,253,419
1862	99,677	299,715	261,824	44,067	236,909	220,499	470,264	1,632,955
1863	102,008	338,551	228,632	65,171	270,952	296,998	512,784	1,815,096
1864	104,069	280,723	215,986	260,902	116,681	362,767	829,670	2,170,798
1865	99,865	249,220	212,677	75,344	226,293	327,328	1,043,718	2,234,350
1866	173,410	314,468	397,963	72,554	458,026	356,306	1,470,065	3,242,792
1867	197,715	295,671	277,432	62,694	409,446	301,909	1,939,679	3,484,546
1868	216,123	280,116	302,421	50,405	402,576	398,761	2,257,811	3,908,243
1869	191,629	273,548	322,978	15,752	436,846	459,784	2,611,672	4,312,209
1870	198,620	271,245	468,976	111,155	348,423	440,353	3,013,733	4,852,505
1871	261,272	319,785	745,670	118,961	508,654	478,229	2,411,637	4,844,208
1872	279,725	304,599	711,720	79,498	595,677	451,543	3,141,512	5,564,274
1873	227,112	325,168	584,030	93,579	444,801	600,980	4,037,032	6,312,702
1874	184,464	395,582	791,265	101,961	227,377	597,572	4,166,055	6,364,276
1875	179,514	288,880	674,174	113,195	322,860	553,253	4,108,070	6,239,946
1876	195,865	341,520	775,464	138,737	302,143	609,955	3,609,134	5,972,818
1877	220,387	385,779	706,571	127,285	369,321	665,014	3,708,094	6,182,451
1878	200,231	433,674	1,067,574	144,727	309,180	614,410	3,380,772	6,150,568
1879	248,153	460,221	1,285,804	165,733	365,981	598,717	5,088,032	8,212,641
1880	386,551	509,948	1,470,983	224,013	440,197	714,512	4,969,688	8,715,892
1881	505,983	538,595	1,800,403	366,358	585,145	528,549	6,761,790	11,086,823

APPENDIX E.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

This table shows the canal tolls and railway freights paid on the tonnage in the preceding table. The aggregate receipts of tolls and railway freights in 1881 exceeded those of 1853, the lowest year in the series, by $29,767,955 ; a gain of 739 per cent on the railway receipts, and a loss on the toll receipts of over 80 per cent.

CANALS AND RAILROADS.	1853.	1854.	Gain in 1854.	Loss in 1854.
New York canals, tolls	$3,204,718	$2,773,566	....	$431,152
New York Central railroad, freight	1,838,830	2,479,820	$640,900	.....
New York and Erie railroad, freight.....	2,537,214	3,369,590	832,376	....
	$7,580,762	$8,622,976	$1,473,366	$431,152
	1854.	1855.	Gain in 1855.	Loss in 1855.
New York canals, tolls	$2,773,556	$2,805,077	$31,511	.....
New York Central railroad, freight	2,479,820	3,189,603	709,783	.....
New York and Erie railroad, freight	3,369,590	3,654,002	283,412	....
	$8,622,976	$9,647,682	$1,024,706	.....
	1855.	1856.	Gain in 1856.	Loss in 1856.
New York canals, tolls.....	$2,805,077	$2,748,212	....	$56,865
New York Central railroad, freight	3,189,603	4,328,041	$1,138,438	.....
New York and Erie railroad, freight.....	3,653,002	4,545,782	892,780	....
	$9,647,682	$11,622,035	$2,031,218	$56,865
	1856.	1857.	Gain in 1857.	Loss in 1857.
New York canals, tolls	$2,748,212	$2,045,641	....	$702,571
New York Central railroad, freight	4,328,041	4,559,276	$231,235	.....
New York and Erie railroad, freight.....	4,545,782	4,097,610	....	448,172
	$11,622,035	$10,702,527	$231,235	$1,150,743

Canals and Railroads.	1857.	1858.	Gain in 1858.	Loss in 1858.
New York canals, tolls	$2,405,641	$2,110,754	$65,313	.....
New York Central railroad, freight	5,559,276	3,700,270	.....	$859,006
New York and Erie railroad, freight	4,097,610	3,843,310	.....	254,300
	$10,702,527	$9,654,334	$65,313	$1,113,306
	1858.	1859.	Gain in 1859.	Loss in 1859.
New York canals, tolls	$2,110,754	$1,723,945	.....	$386,800
New York Central railroad, freight	3,000,270	3,337,148	.....	343,022
New York and Erie railroad, freight	3,843,310	3,195,869	.....	647,441
	$9,654,334	$8,256,962	.....	$1,397,272
	1859.	1860.	Gain in 1860.	Loss in 1860.
New York canals, tolls	$1,723,945	$3,009,597	$1,285,652	.....
New York Central railroad, freight	3,337,148	4,095,939	758,791	.....
New York and Erie railroad, freight	3,195,869	3,884,343	688,474	.....
	$8,256,962	$10,989,879	$2,732,917	.....
	1860.	1861.	Gain in 1861.	Loss in 1861.
New York canals, tolls	$3,009,597	$3,908,785	$899,188	.....
New York Central railroad, freight	4,095,939	4,664,449	568,510	.....
New York and Erie railroad, freight	3,884,343	4,351,464	467,121	.....
	$10,989,879	$12,924,698	$1,934,819	.....
	1861.	1862.	Gain in 1862.	Loss in 1862.
New York canals, tolls	$3,908,785	$5,188,943	$1,279,158	.....
New York Central railroad, freight	4,664,449	6,607,331	1,942,882	.....
New York and Erie railroad, freight	4,351,464	6,642,915	2,291,451	.....
	$12,924,898	$18,439,189	$5,513,491	.....
	1862.	1863.	Gain in 1863.	Loss in 1863.
New York canals, tolls	$5,188,943	$4,645,207	.....	$543,736
New York Central railroad, freight	6,607,331	7,498,509	$891,278	.....
New York and Erie railroad, freight	6,642,915	8,432,234	1,789,319	.....
	$18,439,189	$20,575,950	$2,680,597	$543,736

Canals and Railroads.	1863.	1864.	Gain in 1864.	Loss in 1864.
New York canals, tolls	$4,645,207	$3,983,982	.....	$661,225
New York Central railroad, freight	7,498,509	8,543,370	$1,044,861	.....
Erie railway, freight	8,432,239	9,855,087	1,122,853	.....
	$20,575,950	$22,382,439	$2,467,714	$661,225
	1864.	1865.	Gain in 1865.	Loss in 1865.
New York canals, tolls	$3,983,982	$3,839,955	.....	$144,027
New York Central railroad, freight	8,543,370	8,776,028	$232,658	.....
Erie railway, freight	9,855,087	10,726,264	871,177	.....
	$22,382,439	$23,342,247	$1,103,835	$144,027
	1865.	1866.	Gain in 1866.	Loss in 1866.
New York canals, tolls	$3,839,955	$4,436,639	$596,684	.....
New York Central railroad, freight	8,776,028	9,671,820	895,892	.....
Erie railway, freight	10,726,264	11,611,023	884,759	.....
	$23,342,247	$25,719,582	$2,377,335	.....
	1866.	1867.	Gain in 1867.	Loss in 1867.
New York canals, tolls	$4,436,639	$4,088,058	.....	$348,581
New York Central railroad, freight	9,671,920	9,151,750	.....	520,170
Erie railway, freight	11,611,023	11,204,689	.....	406,334
	$25,719,582	$24,444,497	.....	$1,275,085
	1867.	1868.	Gain in 1868.	Loss in 1868.
New York canals, tolls	$4,088,058	$4,246,563	$158,505	.....
New York Central railroad, freight	9,151,750	9,491,427	339,677	.....
Erie railway, freight	11,204,689	11,425,739	221,050	.....
	$22,444,479	$25,163,729	$719,232	.....
	1868.	1869.	Gain in 1869.	Loss in 1869.
New York canals, tolls	$4,246,563	$3,778,501	.....	$468,062
New York Central railroad, freight	9,491,427	10,457,582	$966,155	.....
Erie railway, freight	11,425,739	13,046,804	1,621,065	.....
	$25,163,729	$27,282,887	$2,587,220	$468,062
	1869.	1870.	Gain in 1870.	Loss in 1870.
New York canals, tolls	$3,778,501	$2,611,578	.....	$1,166,923
New York Central railroad, freight	10,457,582	14,327,418	$3,869,836	.....
Erie railway, freight	13,046,804	12,328,027	.....	718,777
	$27,282,887	$29,267,023	$3,869,836	$1,885,700

Canals and Railroads.	1870.	1871.	Gain in 1871.	Loss in 1871.
New York canals, tolls	$ 2,611,578	$ 3,100,839	$489,261	
New York Central railroad, freight	14,327,418	14,647,580	320,162	
Erie railway, freight	12,328,027	13,232,235	904,208	
	$29,267,023	$30,980,654	$1,713,631	

	1871.	1872.	Gain in 1872.	Loss in 1872.
New York canals, tolls	$ 3,100,839	$ 3,072,411		$28,427
New York Central railroad, freight	14,647,580	16,259,647	$1,612,067	
Erie railway, freight	13,232,235	14,509,745	1,277,516	
	$30,980,654	$33,841,803	$2,889,577	$28,427

	1872.	1873.	Gain in 1873.	Loss in 1873.
New York canals, tolls	$ 3,072,411	$ 2,976,718		$95,693
New York Central railroad, freight	16,259,647	19,616,018	$3,356,371	
Erie railway, freight	14,509,745	15,015,808	506,063	
	$33,841,803	$37,608,544	$3,862,434	$95,693

	1873.	1874.	Gain in 1874.	Loss in 1874.
New York canals, tolls	$ 2,976,718	$ 2,637,071		$339,747
New York Central railroad, freight	19,616,018	20,348,725	$732,707	
Erie railway, freight	15,015,808	13,740,042		1,275,766
	$37,608,544	$36,725,838	$732,707	$1,615,513

	1874.	1875.	Gain in 1875.	Loss in 1875
New York canals, tolls	$ 2,637,071	$ 1,950,032		$ 687,039
New York Central railroad, freight	20,348,725	17,899,702		2,449,023
Erie railway, freight	13,740,042	12,287,400		1,452,642
	$36,725,838	$32,137,134		$4,588,704

	1875.	1876.	Gain in 1876.	Loss in 1876.
New York canals, tolls	$ 1,590,032	$ 1,340,004		$250,028
New York Central railroad, freight	17,899,702	17,593,265		306,437
Erie railway, freight	12,287,400	11,429,930		857,470
	$32,137,134	$30,363,199		$1,413,935

	1876.	1877.	Gain in 1877.	Loss in 1877.
New York canals, tolls	$ 1,304,004	$ 880,896		$4,579,108
New York Central railroad, freight	17,593,265	16,424,316		1,168,949
Erie railway, freight	11,429,930	10,647,807		782,123
	$30,363,199	$27,953,019		$2,410,180

Canals and Railroads.	1877.	1878.	Gain in 1878.	Loss in 1878.
New York canals, tolls	$ 880,896	$ 993,348	$ 112,452	....
New York Central railroad, freight	16,424,316	19,045,030	2,621,514	....
Erie railway, freight	10,647,807	11,914,489	1,266,682	....
	$27,953,019	$31,953,667	$4,000,648	....

	1878.	1879.	Gain in 1879.	Loss in 1879.
New York canals, tolls	$ 993,348	$ 941,574	.....	$ 51,774
New York Central railroad, freight	19,045,830	18,270,250	....	775,580
Erie railway, freight	11,914,489	12,233,481	$318,992	....
	$31,953,667	$31,445,305	$318,992	$827,354

	1879.	1880.	Gain in 1880.	Loss in 1880.
New York canals, tolls	$ 941,574	$ 1,155,419	$ 213,845	....
New York Central railroad, freight	18,270,250	22,199,966	3,929,716	....
Erie railway, freight	12,233,481	14,391,115	2,157,634	....
	$31,445,305	$37,746,500	$6,301,195	....

	1880.	1881.	Gain in 1881.	Loss in 1881.
New York canals, tolls	$ 1,155,419	$ 632,390	....	$ 523,029
New York Central railroad, freight	22,199,966	20,736,750	....	1,463,216
Erie railway, freight	14,391,115	15,979,577	$1,588,462	....
	$37,746,500	$37,348,717	$1,588,462	$1,986,245

APPENDIX F.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

SERIES OF TABLES.

The following series of tables have been prepared to show the tendency of trade on the canals. The remarks preceding each statement explain their object and contents fully.

The total tonnage of all the property on the canals, ascending and descending, its value and the amount of tolls collected for the forty-five years preceding, is as follows:

YEAR.	Tons.	Value.	Tolls.
1837	1,171,296	$ 55,809,288	$1,292,623
1838	1,333,011	65,746,559	1,590,911
1839	1,435,713	73,399,764	1,616,382
1840	1,416,047	66,303,895	1,775,747
1841	1,521,661	92,202,929	2,034,882
1842	1,236,931	60,016,608	1,749,196
1843	1,513,439	76,276,909	2,081,590
1844	1,816,586	90,921,152	2,446,374
1845	1,977,565	100,629,859	2,646,181
1846	2,268,662	115.612,109	2,756,106
1847	2,869,810	151,563,428	3,635,381
1848	2,796,230	140,086,157	8,252,212
1849	2,894,732	144,732,285	3,268,226
1850	3,076,617	156,397,929	3,273,896
1851	2,582,733	159,981,801	3,329,727
1852	3,863,141	196,603,517	3,118,234
1853	4,237,853	207,173,170	2,204,718
1854	4,165,862	210,284,312	2,773,566
1855	4,022,617	204,390,147	2,805,077
1856	4,116,082	218,327,062	2,748,212
1857	3,344,061	136,997,018	2,045,641
1858	3,665,192	138,568,844	2,110,754
1859	3,781,684	132,160,758	1,723,945
1860	4,650,214	170,849,198	3,009,597
1861	4,507,635	130,115,893	3,908,785
1862	5,598,785	203,234,331	5,188,943
1863	5,557,692	240,046,461	4,645,207
1864	4,852,941	274,400,639	3,983,982
1865	4,729,654	256,237,104	3,839,955
1866	5,775,220	270,963,676	4,436,639
1867	5,688,325	278,956,712	4,088,058
1868	6,442,225	305,301,929	4,246,563
1869	5,859,080	249,281,284	3,778,501
1870	6,173,769	231,836,176	2,611,578
1871	6,467,888	238,767,691	3,100,838
1872	6,673,370	220,913,321	3,072,411
1873	6,364,782	191,715,500	2,976,718
1874	5,804,588	196,674,322	2,637,071
1875	4,859,958	145,008,575	1,590,032
1876	4,172,129	113,090,379	1,340,004
1877	4,955,963	128,923,890	880,896
1878	5,171,320	182,254,528	993,348
1879	5,362,372	285,280,726	941,574
1880	6,457,656	247,844,790	1,155,419
1881	5,179,192	162,153,565	632,390

APPENDIX G.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

COST OF CANAL TRANSPORTATION.

DOWN FREIGHT.

The following table was prepared by the Auditor of the New York Canal Department to show the cost of transportation for a series of years on down freight from Buffalo to Albany. It is more specially designed to show the cost of carrying on the Erie Canal 216 pounds or a barrel of flour. The first seven columns give the average monthly cost, including tolls; the eighth shows the average for each series of eight years, and the tenth the average forwarder's charges or earnings after paying tolls :—

Down freight, per bbl., 216 lbs., from Buffalo to Albany.

YEARS.	May.	June.	July.	August.	September.	October.	November.	Average for year.	Tolls deducted.	Leaving freight.
Annual average from 1830 to 1837, 8 years.....	$0 90	$0 84	$0 83	$0 81	$0 86	$0 88	$0 92	$0 86	$0 43	$0 43
Annual average from 1838 to 1845, 8 years.....	$0 73	$0 65	$0 63	$0 62	$0 65	$0 68	$0 85	$0 69	$0 35	$0 34
Annual average from 1846 to 1853, 8 years.....	$0 59	$0 58	$0 54	$0 52	$0 54	$0 61	$0 74	$0 59	$0 28	$0 31
Annual average from 1854 to 1861, 8 years.....	$0 45	$0 40	$0 40	$0 41	$0 46	$0 50	$0 57	$0 45	$0 19	$0 26
Annual average from 1862 to 1869, 8 years.....	$0 42	$0 43	$0 46	$0 47	$0 50	$0 58	$0 63	$0 49	$0 23	$0 27
Annual average from 1870 to 1881, 12 years.....	25	22	22	23	27	30	32	26	08	18

Up Freight.

The following shows the average cost of transportation on the New York canals from Albany to Buffalo from 1830 to 1881 inclusive, for each month of the year during the season of navigation; the average cost for each period of eight years; the average of the tolls charged during said period upon 100 pounds of freight carried; and the average charges of the carrier. These prices are assumed and understood to cover the whole cost of transit to the shipper or consignee, and special attention is invited to the marked difference between the averages of the first 16 and the last 36 years, embracing the whole period covered by the table:

Up freight per 100 *lbs. from Buffalo to Albany.*

YEARS.	May.	June.	July.	August.	September.	October.	November.	Average for year.	Tolls deducted.	Leaving freight.
Annual average from 1830 to 1837, 8 years.....	$0 95	0 94	0 92	0 90	0 90	0 88	0 91	0 92	0 41	0 51
Annual average from 1838 to 1845, 8 years.....	$0 72	0 67	0 64	0 61	0 67	0 70	0 79	0 69	0 33	0 36
Annual average from 1846 to 1853, 8 years.....	$0 35	0 34	0 34	0 34	0 34	0 35	0 37	0 35	0 22	0 13
Annual average from 1854 to 1861, 8 years.....	$0 20	0 19	0 19	0 18	0 18	0 19	0 19	0 19	0 11	0 08
Annual average from 1862 to 1869, 8 years.....	$0 12	0 12	0 12	0 12	0 14	0 14	0 14	0 13	0 5½	0 07½
Annual average from 1870 to 1881, 12 years.....	$0 11½	0 11½	0 11½	0 11½	0 13	0 13	0 13	0 12	0 04½	0 07½

APPENDIX H.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

The following official table exhibits the averages on up and down freight on the Erie Canal for the last fifty-two years, in periods of four years. The reduction from 1850 to 1853, and from 1858 to 1881, presents a very remarkable feature in canal transportation.

PERIOD.	Average charge on up freight per 100 lbs., from Albany to Buffalo.			Average charge on down freight, per bbl., 216 lbs., from Buffalo to Albany.		
	Tolls.	Freight.	Whole charge.	Tolls.	Freight	Whole charge.
	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
From 1830 to 1833, inclusive, 4 years	49	45	94	51	44	95
From 1834 to 1837, inclusive, 4 years	33	57	90	35	42	77
From 1838 to 1841, inclusive, 4 years	33	45	78	35	40	75
From 1842 to 1845, inclusive, 4 years	33	26	59	35	27	62
From 1846 to 1849, inclusive, 4 years	24	15	39	31	33	64
From 1850 to 1853, inclusive, 4 years	19	11	30	25	29	54
From 1854 to 1857, inclusive, 4 years	15	10	25	23	29	52
From 1858 to 1861, inclusive, 4 years	6	6	12	16	22	38
From 1862 to 1865, inclusive, 4 years	6	7	13	23	27	50
From 1866 to 1869, inclusive, 4 years	5¼	7¾	13	23	26	49
From 1870 to 1873, inclusive, 4 years	5¼	7¾	13	11½	26¼	37¾
From 1874 to 1877, inclusive, 4 years	5¼	7¾	13	7½	16	23½
From 1878 to 1881, inclusive, 4 years	4	7½	11½	4	12½	16½
The per cent of reduction from the period ending with 1833 to the period ending with 1849, is	51	66	58	39	25	33
The per cent of reduction from the period ending with 1849 to the period ending with 1881, is	83	50	70	87	62	74
The per cent of reduction from the period ending with 1833 to the period ending with 1881, is	92	83	88	92	72	83

APPENDIX I.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

The following table presents the cost of transportation per ton on the New York canals during the period embraced in the preceding tables on up and down freight, the tolls paid to the State, and the carrier's charge.

YEAR.	UP FREIGHT PER TON FROM ALBANY TO BUFFALO.			DOWN FREIGHT PER TON FROM BUFFALO TO ALBANY.		
	Average per year.	Tolls deducted.	Leaving freight.	Average per year.	Tolls deducted.	Leaving freight.
1830	$20 00	$10 22	$ 9 78	$ 9 07	$ 5 11	$ 3 96
1831	10 80	10 22	9 58	8 89	5 11	3 78
1832	20 00	10 22	9 78	9 26	5 11	4 15
1833	14 80	8 76	6 04	8 15	3 65	4 50
1834	16 40	6 57	9 83	7 68	3 28	4 40
1835	16 00	6 57	9 43	6 29	3 28	3 01
1836	21 00	6 57	14 43	7 13	3 28	3 85
1837	18 00	6 57	12 03	7 50	3 28	4 22
Annual average from 1830 to 1837, 8 years	$18 32	8 21	10 11	8 00	4 01	3 99
1838	$17 80	$ 6 57	$11 23	$ 6 76	$ 3 28	$ 3 48
1839	17 85	6 57	11 23	6 94	3 28	3 62
1840	16 20	6 57	10 03	7 50	3 28	4 22
1841	12 20	6 57	5 63	6 57	3 28	3 29
1842	13 20	6 57	6 63	6 02	3 28	2 74
1843	11 20	6 57	4 63	5 56	3 28	2 28
1844	13 00	6 57	6 43	5 56	3 28	2 28
1845	9 60	6 57	3 03	6 57	3 28	3 29
Annual average from 1838 to 1845, 8 years	$13 92	6 57	7 35	6 43	3 28	3 15

APPENDIX J.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

Mr. John A. Place, Auditor of the New York Canal Department, concludes his official report for 1881 on the tolls, trade and tonnage of the canals of the State of New York, with the following striking table and apposite remarks on the marked revolution which has taken place in the inland carrying trade in favor of railways and to the detriment of canals, as illustrated by the operations respectively of the New York canals and only two great trunk lines of the vast railway system of the United States, during the year 1881, and for a period of six years, from 1876 to 1881, both inclusive. Mr. Place says :—

" The preceding statements and tables show the business of the New York State canals for the navigable year which commenced May 12 and closed December 8, 1881.

" The results shown, as compared with the previous year, are a loss in tolls of $523,029, or over forty-five per cent ; and a loss in tonnage of 1,278,464 tons, or nearly twenty per cent.

" The aggregate tonnage of the New York Central and the Erie railways amounted to 22,678,202 tons, being a gain over the previous year of 3,429,272 tons, or over seventeen per cent.

" The combined tonnage of the canals, and the Central and Erie railways amounted to 27,857,394 tons; the highest aggregate yet reached, being a net gain of 2,150,808 tons over the previous year, and a gain of nearly sixty-five per cent over the tonnage of 1876, when the aggregate was 16,948,627 tons.

" The following statement will show the business of the canals and the two railways, and the aggregate movement for each year, commencing with 1876 :

YEAR.	Tons moved by canals.	Tons moved by Central railway.	Tons moved by Erie railway.	Aggregate tons moved.
1876	4,172,129	6,803,680	5,972,818	16,948,627
1877	4,955,963	6,351,356	6,182,451	17,489,770
1878	5,171,320	7,695,413	6,150,568	19,017,301
1879	5,362,372	9,015,753	8,212,641	22,590,766
1880	6,457,656	10,533,038	8,715,892	25,706,586
1881	5,179,192	11,591,379	11,086,823	27,857,394

APPENDIX K.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

The *Monetary Times*, of September 28, 1883, refers as follows to the steadily growing monopoly of the western grain carrying trade by American railways to the exclusion of the water routes, notwithstanding the higher cost of transportation by rail to tide-water, since the reduction of the American canal tolls :—

" Official statistics show that during the past fiscal year " 80·2 per cent. of the receipts of grain at Atlantic ports " came by rail, the percentage falling to lake, canal and " Hudson river transportation being 19·18. Ocean steamer " rates from New York to Liverpool were, in 1873, 21·12 " cents per bushel on wheat; in 1882 they were 7·74 cents; " in 1883, 9·08 cents. In 1868 the cost of carrying a bushel " of wheat from Chicago to New York by lake and canal " 25·3 cents ; by lake and rail, 29 cents ; by all rail, 42·6 " cents. Since that date rates have been decreasing con- " stantly, and during the past year they were but one-third " of the amount in 1868. This explains in part the large " exportation of cereals in recent years. A comparison be- " tween the cost of carrying wheat from Chicago to Liver- " pool and from San Francisco to the same port shows that " the advantage in favor of Chicago is from 18 to 22 cents."

APPENDIX L.

INLAND COMMUNICATIONS—UNITED STATES.—(*Continued.*)

THE ERIE CANAL.

THE GREAT DITCH FALLING INTO DISUSE.

No Tolls, no Repairs! All going to the Bad.

THE RESULTS OF RAILWAY COMPETITION—THE ABOLITION OF CANAL TOLLS NO ANTIDOTE.

The New York *Bulletin* gives some of its space to the complaints of the Erie Canal boatmen, one of whom has never seen the ditch suffering so much from neglect during the thirty-five years of his acquaintance with it. It says that the leaks in the locks are allowed to go unrepaired, the millers steal water, and the canal is frequently so shallow that the bottoms of the barges are injured by contact with stones and

HORSES AND MULES ARE OVERWORKED,

as the result of the extra strain thus put upon them. The *Bulletin* reminds the boatmen that when the free canal *furore* was under way it predicted just such a state of affairs as that complained of, and it accounts for the neglect of the canal by pointing out that having ceased to pay for its own support it is reduced to the rank of a pauper, and is not likely to receive any better treatment than the State metes out to its other paupers.

APPENDIX M.

Inland Communications—Canada.

The following tables, taken from the carefully compiled report of Mr. Wm. J. Patterson, Secretary of the Montreal Board of Trade and Corn Exchange Association, for the years 1880 to 1882, and showing at a glance the steady decrease of the traffic on the Canadian canals and the corresponding increase of the mileage and traffic on Canadian railways, bear out the argument as to the overshadowing role which railways are destined to play in the future inland carrying trade of this country :—

Traffic on Canadian Canals.

Year ending 30th June.	Tons of Freight.	No. of Passengers.	Tonnage of Vessels.
1872	3,030,233	90,644	3,721,364
1873	3,309,299	100,374	3,933,798
1874	3,420,800	95,895	4,099,874
1875	2,931,479	99,206	2,570,205
1876	2,647,602	100,227	3,381,021
1877	2,734,153	146,375	3,576,698
1878	2,478,257	144,370	4,310,862
1879	2,206,679	170,401	3,921,095
1880	2,370,868	129,137	4,143,047
1881	2,556,709	122,507	4,283,817
1882	2,542,843	110,787	4,063,247

Traffic on Canadian Railways.

Year ending 30th June.	Total miles of roads.	Train Mileage.	Number of Passengers.	Tons of Freight.	Aggregate Earnings.	Operating Expenses.	Paid-up Capital.
1875...	4,826½	17,680,163	5,190,416	5,670,836	$19,470,539	$15,775,532	.....
1876...	5,157¼	18,103,628	5,544,814	6,331,757	19,358,084	15,802,721	$317,795,468
1877...	5,574¼	19,450,813	6,073,233	6,859,796	18,742,053	15,290,091	326,328,876
1878...	6,143½	19,669,447	6,443,924	7,883,472	20,520,078	16,100,102	360,617,186
1879...	6,484½	20,731,689	6,523,816	8,348,810	19,925,066	16,188,102	362,086,138
1880...	6,891¼	22,427,449	6,462,948	9,938,858	23,561,447	16,840,705	371,051,192
1881...	7,260	27,301,306	6,943,671	12,065,323	27,987,509	20,121,418	389,285,700
1882...	7,530½	27,846,411	9,352,335	13,575,787	29,027,789	22,390,708	415,611,010

The following comparative statement of Passenger and Freight Traffic is from the report of the Chief Engineer and General Manager of the Government Railways :—

Name of Railway.	Passengers Carried.		Tons of Freight.	
	1881-82.	1880-81.	1881-82.	1880-81.
Grand Trunk and leased lines...	2,710,963	2,179,793	3,595,192	3,295,288
Great Western do ...	2,289,028	1,838,788	2,741,166	2,572,052
Intercolonial.....	779,994	631,245	838,596	725,577
Canada Southern.....	312,331	260,990	2,'29,733	2,135,811
Northern and North-Western.....	476,878	411,847	614,042	562,30
Midland	126,111	116,554	237,845	202,095
Toronto, Grey and Bruce.	145,649	111,076	124,560	116,487

The total number of passengers carried was 9,352,335½ against 6,943,671, showing an increase of 2,408,664½ or 34-68 per cent. over the year 1880-81; and the tonnage of freight handled was 13,575,787 tons, against 12,065,323 showing and increase of 1,510,364 tons, or 12-51 per cent.

APPENDIX P.

INLAND COMMUNICATIONS—CANADA.—(*Continued.*)

STATEMENT showing *total* values, also the values of different (or principal) articles of Produce and Manufacture exported from the Dominion during the past five fiscal years:—[Report Secretary Montreal Board of Trade.]

ARTICLES.	1881-82.	1880-81.	1879-80.	1878-79.	1877-78.
PRODUCE OF THE MINE.	$	$	$	$	$
Coal	1,078,704	1,123,091	1,913,899	937,268	1,210,689
Iron	135,463	114,850	76,474	7,530	13,405
Copper	139,245	150,412	150,799	19,762	119,629
Phosphates	327,667	239,493	119,882	216,295	64,612
Gold bearing Quartz	930,151	767,318	1,086,994	944,095	1,031,509
PRODUCE OF THE FISHERIES					
Herring	567,705	463,826	455,963	446,984	486,295
Cod, Haddock	3,427,636	3,180,014	3,564,036	3,197,115	3,192,216
Mackerel	473,547	823,935	686,414	814,282	1,035,700
Lobsters	1,446,151	1,349,229	918,790	1,104,539	927,257
Salmon	1,113,427	470,462	546,952	926,508	759,922
PRODUCE OF THE FOREST.					
Square Timber	3,705,914	6,031,140	2,426,405	1,880,696	4,714,515
Lumber (Planks and Boards)	8,267,862	7,101,532	5,880,281	4,119,196	4,375,152
Shingles	238,585	188,444	121,445	149,346	144,485
Shingle Bolts	5,653	3,386	2,202	385	747
Deals and Deal Ends	8,191,508	9,001,682	5,998,135	5,243,619	7,921,281
ANIMALS AND THEIR PRODUCTS.					
Horses	2,326,637	2,094,037	1,880,379	1,376,794	1,273,720
Cattle	3,256,330	3,464,871	2,764,437	2,096,696	1,152,334
Sheep	1,228,957	1,372,127	1,422,830	988,045	699,337
Cheese	5,500,868	5,510,443	3,893,366	3,790,300	3,997,521
Butter	2,936,156	3,573,034	3,058,069	2,101,897	2,382,237
Eggs	1,643,709	1,103,812	740,665	574,093	646,574
Furs	1,278,340	1,983,096	1,035,625	1,191,356	1,326,601
AGRICULTURAL PRODUCTS.					
Wheat	5,180,335	2,593,820	5,942,042	6,274,640	5,376,195
Peas	3,191,869	3,478,003	2,977,516	2,055,872	1,984,101
Barley	10,114,623	6,260,183	4,481,685	4,789,487	4,315,739
Rye	1,191,119	783,840	702,701	364,017	251,669
Oats	1,728,774	1,191,873	1,707,326	804,325	959,985
Flour of Wheat	2,748,988	2,173,108	2,930,955	2,572,675	2,739,466
Manufactures	3,329,598	3,075,095	13,509,324	11,101,761	12,637,233
Unenumerated Articles	14,337,190	11,255,223			
Total Value of Produce of Canada	90,042,711	80,921,379	70,096,191	60,089,578	65,740,134
Total Value not the Produce of Canada	7,628,453	13,375,117	13,240,006	8,355,644	11,164,878
Grand Total, exclusive of Coin and estimated amount short returned at Inland Ports	97,671,164	94,296,496	83,336,197	68,445,222	76,905,012

APPENDIX O.

INLAND COMMUNICATIONS—CANADA.—(*Continued.*)

THE TRADE IN BREADSTUFFS.

Imports and Exports of Grain, Flour and Meal during the last six fiscal years.

IMPORTS.	1881-82.	1880-81	1879-80.	1878-79.	1877-78.	1876-77.
Maize.....bush.	3,918,031	7,454,892	6,377,387	7,617,421	7,387,507	8,260,079
Wheat..... "	2,931,220	7,339,689	7,521,594	4,768,733	5,635,411	4,589,051
Other Grain..... "	87,706	105,970	214,237	2,190,382	2,621,581	2,142,487
Flour..... brls.	200,716	236,433	113,035	315,044	316,403	549,063
Meal..... "	134,490	179,263	173,896	175,172	231,470	302,614
Totals.....bush.	9,283,787	16,983,076	15,547,873	17,321,702	18,416,379	19,311,052
EXPORTS.						
Barley.....bush.	11,588,446	8,811,278	7,241,379	5,393,212	7,543,342	6,587,180
Maize..... "	2,229,900	5,257,604	4,547,942	5,429,359	3,987,600	4,083,174
Oats..... "	4,148,865	2,926,531	4,742,028	2,514,598	2,430,841	3,996,156
Peas..... "	3,521,496	4,245,590	3,819,412	2,715,252	2,420,049	1,753,439
Rye..... "	1,281,678	870,296	970,463	641,694	452,420	95,065
Wheat..... "	6,433,533	9,092,279	12,169,493	9,767,555	8,509,243	3,559,095
Other Grain..... "	187,760	2,887	15,488	5,439	5,920	3,928
Flour..... brls	508,120	501,455	561,484	580,776	479,245	276,439
Meal..... "	54,520	56,541	115,602	104,979	177,002	35,509
Totals.....bush.	32,477,478	34,379,150	37,429,227	30,406,464	29,580,024	21,917,926

APPENDIX P.

INLAND COMMUNICATIONS—CANADA.—(*Continued.*)

GENERAL SUMMARY OF THE CANADIAN WHEAT AND FLOUR TRADE.

TABLE shewing Wheat and Flour of Wheat Imports into and Exports from the Dominion, also estimated Home Production, and Surplus Exported during past ten Fiscal Years, ending 30th June.

Fiscal years, ending 30th June.	IMPORTS.			Home Production. (estimt'd)	Home Consumption (estimt'd)	EXPORTS.							Deficit of Exports from Imports.	Surplus of Exports over Imports.
						PRODUCE OF CANADA.			NOT PRODUCE OF CANADA.			Total Produce and Not Produce.		
	Wheat bush.	Flour brls.	Total bush.	Wheat bush.	Wheat bush.	Wheat bush.	Flour brls.	Total bush.	Wheat bush.	Flour brls.	Total bush.			
1872-73...	5,821,390	273,265	7,187.715	21,702,286	20,065,763	4,379,741	474,202	6,750,751	2,025,932	9,511	2,073,487	8,824,238	.....	1,636,523
1873-74...	8,405,616	288,056	9,845,896	25,487,776	20,550,908	6,581,217	540,317	9,282,802	5,429,842	14,024	5,499,962	14,782,764	.....	4,936,868
1874-75...	5,105,158	467,786	7,444,088	21,840,760	20,686,399	4,383,022	302,783	5,896,937	2,670,522	6,198	2,701,512	8,598,449	.....	1,154,361
1875-76...	5,838,156	376,114	7,718,726	24,674,163	21,044,819	6,070,393	415,504	8,147,913	3,177,997	4,432	3,200,157	11,348,070	.....	3,629,344
1876-77...	4,589,051	549,063	7,334,366	18,888,564	21,291,640	2,393,155	268,605	3,796,180	1,165,940	7,834	1,205,110	4,941,290	2,393,076	.....
1877-78...	5,635,411	314,520	7,208,011	25,501,955	21,814,498	4,393,535	476,431	6,765,690	4,115,708	2,814	4,129,778	10,895,468	.....	3,687,457
1878-79...	4,768,733	315,044	6,343,953	28,617,228	22,339,746	6,610,724	574,947	9,485,459	3,156,821	5,829	3,185,976	12,671,435	.....	6,327,482
1879-80...	7,521,594	113.035	8,086,769	29,556,103	22,665,959	5,090,505	544,591	7,813,460	7,078,988	16,803	7,163.453	14,976,913	.....	6,890,144
1880-81...	7,339,689	236,434	8,521,854	25,936,827	22,859,137	2,523,673	439,728	4,722,313	6,568,606	61,727	6,877,231	11,599,544	.....	3,077,690
1881-82...	2,931,220	200,716	3,934,300	27,696,552	22,957,219	3,845,035	469,739	6,193,730	2,588,498	38.381	2,780,403	8,974,133	.....	5,039,333

APPENDIX Q.

INLAND COMMUNICATIONS—CANADA. —(*Continued.*)

GRAIN AND PRODUCE TRADE OF MONTREAL.

SUMMARY VIEW OF THE MOVEMENTS OF GRAIN, FLOUR, &c.

Details of the Produce Trade during the past five years, are recapitulated in the following statements, which show the receipts and shipments of Grain, Flour, and Meal, during that period :—

Receipts from 1878 *to* 1882 *inclusive.*

	1882.	1881.	1880.	1879.	1878.
Wheat.....bush.	8,273,678	7,599,825	9,637,124	11,313,634	7,390,095
Corn..... "	702,879	3,817,006	7,772,549	4,389,291	6,117,326
Peas..... "	2,099,607	3,015,544	2,617,656	2,026,379	1,611,433
Oats..... "	926,996	1,447,813	1,191,531	490,541	723,103
Barley..... "	247,532	284,212	357,176	365,789	429,416
Rye..... "	100,484	468,427	443,528	329,025	18,952
Flour.....brls.	866,066	826,167	735,596	771,384	916,379
Meal..... "	29,579	46,938	49,524	42,117	106,195
Total in bushels.....	16,975,541	21,222,982	26,187,324	23,192,749	21,934,170

Shipments from 1878 *to* 1882 *inclusive.*

	1882.	1881.	1880.	1879.	1878.
Wheat.....bush.	6,913,290	6,554,622	9,084,266	10,461,221	6,802,822
Corn..... "	672,850	3,359,084	7,622,161	4,052,307	5,664,835
Peas..... "	2,202,674	3,133,203	3,081,674	2,621,592	2,226,792
Oats..... "	545,962	1,211,221	1,853,829	645,485	957,376
Barley..... "	128,451	133,824	293,023	418,375	335,846
Rye..... "	99,351	459,666	452,847	333,491	38,371
Flour.....brls.	775,862	632,821	739,007	725,109	716,793
Meal..... "	48,932	65,506	111,807	59,793	128,918
Total in bushels.....	14,878,923	18,567,360	26,091,130	22,725,946	20,899,187

Receipts by Railway and Canal respectively.

	1882.		1881.		1880.	
	By Rail.	Canal & River.	By Rail.	Canal & River.	By Rail.	Canal & River.
Wheat.....bush.	1,547,272	6,726,406	2,295,234	5,394,591	1,172,651	8,464,473
Corn..... "	88,061	614,818	735,511	3,081,495	609,124	7,163,425
Peas..... "	747,925	1,351,682	540,406	2,475,138	469,565	2,148,091
Oats..... "	185,039	741,957	366,206	1,081,607	242,508	949,023
Barley..... "	69,063	178,469	79,318	204,894	127,726	229,450
Rye..... "	20,454	71,030	86,546	381,881	50,952	392,576
Flour.....brls.	715,539	150,527	673,455	152,712	564,235	171,261
Meal..... "	28,710	869	46,365	573	47,886	1,638
Total in bushels.....	6,531,009	10,444,532	7,885,946	13,387,046	5,972,561	20,214,763

Shipments by River St. Lawrence.

The shipments of Grain, Flour, &c., in sea-going vessels, via River St. Lawrence, during the past five years, were as follows :—

	1882.	1881.	1880.	1879.	1878.
Wheat ..... bush.	5,798,496	5,539,886	8,267,277	9,417,051	5,557,743
Corn..... "	596,104	3,226,916	7,091,576	4,011,986	5,546,906
Peas..... "	1,672,059	2,805,381	2,894,450	2,366,606	1,894,240
Oats..... "	149,573	1,166,448	1,755,838	601,299	904,475
Barley..... "	1,181	7,326	60,165	378,646	81,564
Rye..... "	78,412	459,659	437,967	321,890	38,222
Flour.....brls.	387,851	278,821	383,397	351,067	316,569
Meal..... "	28,536	28,529	64,846	31,760	76,643
Total in bushels.....	10,498,265	14,866,901	23,049,143	19,180,413	16,372,425

An examination of the various totals, in connection with the percentages in the following statements, will make it easy to realize how much of the eastward flow of breadstuffs was accounted for at Montreal:—

		Receipts.	Shipments.
In 1870	Montreal's proportions were	9·31 per cent.	.....
1871	" "	9·69 "	.....
1872	" "	9·73 "	.....
1873	" "	10·67 "	19 98 per cent.
1874	" "	8 63 "	15·55 "
1875	" "	9·14 "	16·87 "
1876	" "	8·75 "	14·12 "
1877	" "	8·72 "	13·53 "
1878	" "	7·09 "	9·54 "
1879	" "	6·66 "	8·82 "
1880	" "	7·22 "	9·59 "
1881	" "	7·34 "	9·56 "
1882	" "	7·44 "	11·20 "

APPENDIX R.

INLAND COMMUNICATIONS—CANADA.—(*Continued.*)

—		Boston.	New York.	Philadelphia.	Baltimore.	New Orleans.	Montreal.	TOTALS.
		Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1870...	Receipts	13,102,703	69,921,175	15,307,011	13,819,101	15,480,179	13,106,630	140,736,799
	Shipments	.....	29,455,814	.....	.....	.....	13,601,310	.....
1871...	Receipts	15,037,943	89,543,673	20,102,425	17,389,443	14,601,922	16,808,108	173,483,514
	Shipments	.....	43,595,502	.....	.....	.....	16,186,484	.....
1872...	Receipts	17,068,086	90,930,336	24,117,150	20,571,499	15,256,805	18,115,670	186,059,546
	Shipments	.....	45,901,493	.....	.....	.....	17,522,957	.....
1873...	Receipts	17,926,202	92,137,971	24,949,157	19,099,517	13,214,226	19,989,094	187,316,167
	Shipments	2,145,364	54,278,072	4,807,620	9,049,545	1,433,278	17,912,572	89,626,451
1874...	Receipts	18,000,002	107,273,158	21,625,591	24,936,208	12,295,333	17,676,188	204,806,480
	Shipments	3,186,318	66,088,650	6,671,334	12,555,090	2,394,476	16,739,580	107,635,438
1875...	Receipts	18,321,063	93,895,082	22,452,400	22,048,569	9,669,296	17,324,137	189,453,477
	Shipments	3,987,959	50,599,710	8,816,515	11,407,489	774,927	15,363,184	91,066,475
1876...	Receipts	22,753,693	95,949,242	36,310,565	35,255,176	9,544,194	19,086,600	218,190,865
	Shipments	6,043,298	55,253,686	22,016,515	24,761,307	2,145,818	18,167,642	128,634,738
1877...	Receipts	23,215,457	103,313,782	25,420,545	35,346,470	10,025,381	18,825,184	215,697,367
	Shipments	6,178,145	62,815,405	13,595,345	25,579,827	3,101,232	17,346,678	128,157,263
1878...	Receipts	27,291,781	152,853,306	45,474,650	47,075,240	14,529,304	21,934,170	309,167,315
	Shipments	12,941,359	107,819,044	29,876,327	39,724,954	7,606,427	20,899,187	218,867,298
1879...	Receipts	32,798,829	163,124,890	47,398,455	66,799,926	14,895,836	23,192,749	348,210,685
	Shipments	15,891,088	123,513,859	32,748,462	55,383,865	7,065,416	22,755,946	257,886,437
1880...	Receipts	37,091,005	169,042,362	49,255,163	60,631,426	20,357,857	26,192,784	362,570,607
	Shipments	21,739,738	134,871,315	31,587,649	50,693,486	17,438,914	27,200,905	283,532,007
1881...	Receipts	35,988,837	140,919,071	28,526,714	43,354,247	20,143,339	21,222,982	290,155,190
	Shipments	17,138,078	96,532,200	16,421,614	34,310,178	12,564,510	18,567,360	195,533,940
1882...	Receipts	31,585,315	115,701,783	19,968,821	28,901,781	14,921,391	16,975,541	228,054,632
	Shipments	11,742,713	70,733,353	7,696,656	21,033,022	6,706,512	14,878,923	132,791,179

APPENDIX S.

INLAND COMMUNICATIONS—CANADA.—(*Continued.*)

RELATION OF THE MONTREAL GRAIN TRADE TO THAT OF ATLANTIC PORTS.

☞ The percentages in first two columns relate respectively to Receipts and Shipments at six Atlantic Ports. The percentages in third and fifth columns have reference to the combined yearly volume of Receipts and Shipments, given in juxtaposition in fourth column.

YEAR.	Yearly Aggregate Receipts at Montreal.	Yearly Aggregate Shipments at Montreal.	Aggregates at Montreal.	Yearly Volume of Receipts & Shipments at Six Atlantic Ports.	Yearly Volume of Receipts and Shipments New York.
1870	13,106,630 *or* 9·31 p.c.	13,601,310	26,707,940	.....	.....
1871	16,808,108 " 9·69 "	16,186,484	32,994,592	.....	.....
1872	18,115,670 " 9·73 "	17,522,957	35,638,627	.....	.....
1873	19,989,094 " 10·67 "	17,912,572 *or* 19·98 p.c.	37,901,666 *or* 13·69 p.c.	276,942,618	146,416,043 *or* 52·87 p.c.
1874	17,676,188 " 8·63 "	16,739,580 " 15·55 "	34,415,768 " 11·02 "	312,441,918	173,361,848 " 55·48 "
1875	17,324,137 " 9·14 "	15,363,184 " 16·87 "	32,687,321 " 11·66 "	280,519,952	144,494,792 " 51·51 "
1876	19,086,600 " 8·75 "	18,167,642 " 14·12 "	37,254,242 " 10·74 "	346,825,603	151,202,928 " 43·60 "
1877	18,825,184 " 8·72 "	17,346,678 " 13·53 "	36,171,862 " 10·50 "	343,850,630	166,129,187 " 48·31 "
1878	21,934,170 " 7·09 "	20,899,187 " 9·54 "	42,833,357 " 8·11 "	528,034,613	260,672,350 " 49.37 "
1879	23,192,749 " 6·66 "	23,755,946 " 8·82 "	45,948,695 " 7·58 "	608,097,122	286,638,749 " 47·62 "
1880	26,192,784 " 7·22 "	27,200,905 " 9·59 "	53,393,689 " 8·27 "	646,102,614	303,913,677 " 47·03 "
1881	21,222,982 " 7·34 "	18,567,360 " 9·56 "	39,790,342 " 8·22 "	484,414,690	237,451,271 " 49·02 "
1882	16,975,541 " 7·44 "	14,878,923 " 11·20 "	31,854,464 " 8·82 "	360,845,811	186,435,136 " 51·66 "

APPENDIX T.

INLAND COMMUNICATIONS—CANADA

PORT OF MONTREAL.

STATISTICS FROM 1880 TO 1883.

(*Translated from "Le Moniteur du Commerce."*)

The Harbor Master of Montreal has published his report for the season of navigation of 1883; the following table shows the number of sea-going vessels arrived in port to the 1st December during the years 1880 to 1883, together with their tonnage:—

	1880.	1881.	1882.	1883.
Steamships	354	321	352	464
Tonnage	475,741	446,457	466,460	605,805
Sailing Vessels	356	248	296	196
Tonnage	152,530	85,472	88,180	58,458
Total steam and sail.	710	569	648	660
" tonnage	628,271	531,929	554,646	664,263

These vessels were divided as follows:—

	1880.	1881.	1882.	1883.
Steamers	354	321	352	464
Sailing Ships	42	5	4	3
Barks	143	104	95	70
Brigs	11	9	14	7
Brigantines	41	30	42	15
Schooners	119	100	141	101
Total	710	569	648	660

The movement of inland navigation was as follows:—

Years.	Number of Vessels.
1880	6,489
1881	6,030
1882	5,943
1883	4,477

The level of the river showed the following depths in the channel on the 1st December in each year :—

Years.	Feet.	Inches.
1880	22	7
1881	21	2
1882	24	11
1883	27	1

The foregoing table indicates very forcibly the change taking place in our maritime traffic. Since 1880, steam navigation has undergone an almost constant increase, while that by sail has almost as steadily diminished. As far as the port of Montreal is concerned, the increase of steam vessels from 1880 to 1883 has amounted to 110 and that of their tonnage to 130,064 tons. On the other hand, the falling off in sailing vessels during the same period was to the number of 50 and, in their tonnage, to the extent of 94,072 tons. The improvement of our railway system has more than counterbalanced the advantages arising from the works executed on our canals. Since 1880, the arrivals in our port of craft engaged in inland navigation have gone on diminishing, 1883 showing a falling off of 1,012, or about 16 per cent, as compared with 1880. No doubt but that the insufficient depths of water in the canals between Kingston and Montreal has had a good deal to do with the loss suffered by our port, and that the abolition of tolls on the Erie Canal equally contributed to divert from Montreal a certain portion of its trade. Nevertheless, apart from these drawbacks to Montreal it is only right to observe that the large falling off of about 500 vessels, that took place in our inland navigation of 1882 to 1883, is closely connected with the general depression of the export trade, and that in this respect the ports of the United States have not fared any better than ours.

APPENDIX U.

INLAND COMMUNICATIONS—UNITED STATES AND CANADA.

The following article, clipped from the columns of the Montreal *Journal of Commerce*, very ably sums up the whole case between railways and canals as rivals and competitors for the inland carrying trade of both the United States and Canada :—

"CANAL TRAFFIC.

"The statistics of canals for the season of navigation, 1882, have been issued in blue book form by the Inland Revenue Department. It is satisfactory to note that there has been an increase in the revenue, although not so much as might have been expected from the great improvements made in the Welland Canal. It is in this work that the great advance appears, the revenue therefrom showing an increase of $26,687 over that for 1881. The Ottawa, Chambly and Rideau canals also show some increase, while the St. Lawrence canals show a falling off of $17,558. The aggregate increase in revenue is $17,413, or a fraction over 5½ per cent as compared with 1881. The enhanced facilities of the Welland are shown by the small number of vessels lightened at Port Colborne, which were only 8 against 133 in the previous year; the number unladen without entering the canal was 1 as against 22 in the former season. The Commissioner quotes the statistics of railway and canal freight for the State of New York. The quantity of freight carried was greater in 1882 by 835,660 tons than the quantity for 1881. The proportion carried by canals shows an increase as compared with the previous year. The quantities carried are as follows :—

Year.	Vegetable food.	Prop'n by Canals.	Total.	Prop'n by Canals.
1869.....	2,390,422	.545	12,453,074	.470
1870.....	3,061,467	.423	15,148,274	.389
1871.....	4,055,787	.456	15,844,152	.389
1872.....	3,544,934	.472	16,631,609	.401
1873.....	3,782,163	.461	18,200,208	.349
1874.....	4,559,115	.387	18,283,547	.317
1875.....	3,648,791	.357	17,101,758	.284
1876.....	3,940,096	.270	16,948,627	.246
1877.....	3,992,667	.375	17,489,770	.283
1878.....	5,608,498	.341	19,017,301	.272
1879.....	6,187,016	.296	22,590,766	.237
1880.....	7,103,475	.333	25,706,586	.251
1881.....	6,100,283	.185	27,857,394	.185
1882.....	5,004,333	.223	28,693,054	.190½

"*The above table is significant as showing the gradual change taking place in the proportion by rail and canal.* The quantity of vegetable food carried to tide-water by canals has decreased a little over 14 per cent as compared with 1869 and slightly increased as compared with 1881; the quantity carried by rail has increased 257 per cent as compared with 1869, but decreased 22 per cent as compared with the year 1881. The proportion of the total volume of vegetable food freight carried by rail has increased from .455 (less than one-half) in 1869 to .777 (over three-fourths) in 1882. The following table shows the total tonnage respectively of vegetable food and heavy goods moved through the Welland Canal during the 12 years ended 31st December, 1882:—

Year.	Wheat, Tons.	Other Cereals, Tons.	Coal, Tons.	Other H'vy Goods, Tons.
1869.....	313,825	190,045	103,126	272,497
1872.....	239,998	298,149	186,932	236,746
1873.....	355,847	224,033	339,016	204,371
1874.....	413,212	234,185	323,503	107,813
1875.....	253,835	164,101	321,306	76,259
1876.....	201,906	207,882	288,211	90,329
1877.....	253,953	210,228	323,869	75,240
1878.....	191,982	211,421	295,318	43,423
1879.....	274,570	163,994	192,957	52,713
1880.....	245,020	197,162	109,986	66,997
1881.....	127,832	141,967	128,113	61,075
1882.....	215,056	91,426	237,559	46,425